American Artisan

Founded 1880

The Warm Air Heating and Sheet Metal Journal

Vol. 96, No. 23 CHICAGO, DECEMBER 8, 1928 $2.00 Per Year

The 1929 Model

RUDY DE LUXE HY-POWER FURNACE

The Furnaces We Build — Build Our Business

THE RUDY FURNACE COMPANY, Dowagiac, Mich.

Heating Merchants Who are Genuinely Interested in Increasing Profits---*Will find the Opportunity in the Sunbeam 4 Point Selling Plan*

THE SUNBEAM 4 POINT SELLING PLAN
1 the right Product
2 the right time-payment plan
3 the right Selling equipment
4 the right Advertising helps

The new SUNBEAM WARM-AIR FURNACES looo Series
NOW READY!
The new SUNBEAM WARM AIR FURNACES looo Series
New Advantages
New Features
Newspaper Advertisements and Movie Slides featuring The new SUNBEAM
Ready-to-Run Newspaper Advertising for SUNBEAM
Advertising and Selling Helps
PRACTICALLY everything that will help you locate prospects, interest them and finally sell them is included in the Sunbeam assortment of advertising and selling helps which are illustrated on this page. The coupon will bring you more complete details.
THE FOX FURNACE COMPANY
ELYRIA, OHIO
Start a SUNBEAM Advertising Campaign in Your Local Newspaper NOW—
NEW! BETTER! A Distinct Advance in Furnace Design
This Home will be Heated with SUNBEAM WARM-AIR HEATING
AUTHORIZED SUNBEAM DEALER
An Amazingly Better Deferred Payment Plan for Sunbeam Furnace Dealers
SUNBEAM WARM AIR HEATING
Their Valuable Features Help You Increase Your Sales
Don't Spend This Winter Suffering from the Cold . . .
For Chilly Mornings SUNBEAM WARM-AIR FURNACES For Zero Days
The Standard Code
Let's go along and investigate this SUNBEAM PIPELESS FURNACE
Sunbeam Warmth Indoors All Winter Long
HEAT that HEALTH
Sunbeamers

The Fox Furnace Company, Elyria, Ohio

We believe that the right kind of Advertising Helps will enable any live furnace dealer to increase his sales and profits. Tell us more about the 4 Point Selling Plan.

*Name*_____

*Address*_____

*City and State*_____

A-12

HERE IT IS!

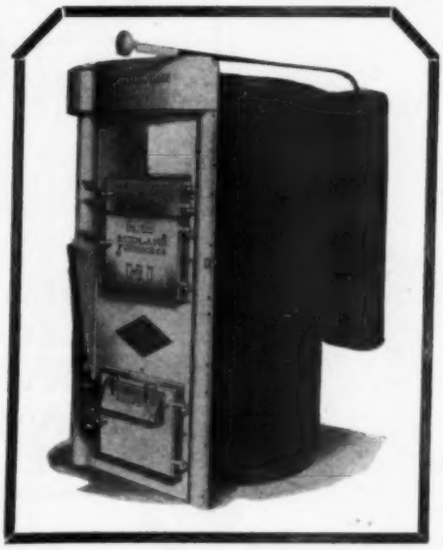
TRUESTEEL

MIDLAND PRODUCT

The 18 Point All Steel Furnace
Built For Cleaner Heat

KNOW THIS FURNACE BY ITS POINTS—

1 All steel construction.
2 Rotary grate—no pins, bolts or nuts.
3 Handfitted doors.
4 Correct radiator brackets.
5 Copper bearing steel.
6 Riveted and calked—gas and smoke proof.
7 Adequate humidifier, correctly located, scientifically designed.
8 Full fire brick lining. Up to smoke collar in rear.
9 Priced within reason.



KNOW THIS FURNACE BY ITS POINTS—

10 Unbreakable front—all steel.
11 Outside shaker lever—waist high.
12 Pouches through front—no joints near doors.
13 Three flue radiator—longer fire travel.
14 Heavier weight steel—for longer life.
15 Large double feed doors.
16 Designed for quick and easy installation.
17 Self-closing direct draft damper.
18 Quality merchandise produced in quantity.

The TRUESTEEL franchise in your community means Larger Profits, Better Satisfied Customers, Cleaner Heat . . . Write today for full information about exclusive territory rights. Learn more about the sales co-operation offered by us.

WATCH FOR OUR INSERT ARTISAN DEC. 29

THE MIDLAND FURNACE CO.
COLUMBUS, OHIO

MIDLAND FURNACES

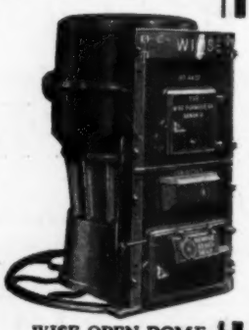
MIDLAND FURNACES

ALL STEEL ◆◆◆ CLEANER HEAT

Published Weekly by American Artisan and Hardware Record, Inc., 620 South Michigan Avenue, Chicago, Illinois. AMERICAN ARTISAN—the Warm Air Heating and Sheet Metal Journal—entered as second class matter, March 26, 1925, at the Post Office at Chicago, Illinois, under act of March 3, 1879. Formerly entered on June 25, 1887, as American Artisan and Hardware Record.

WISE FURNACES

With a New Firepot



WISE OPEN DOME CAST FURNACE

THE New Wise Open Dome is improved with the *Wise Cellular Firepot.*

It is *One-Piece* and heavily constructed.

It has a series of air cells which extend from bottom to top which enable the air to become pre-heated before entering above and into the fuel. This supplies a continuous and evenly distributed air blast.

Another feature is the Elbow Shaped Flue Collar on Inside of Radiator which is turned up so all of the heat must follow the castings to the top before entering flue.

Write for detailed information today.

With a New Radiator

WISE 20 SERIES CAST FURNACE

THE Famous Wise 20 Series has added still more fame for itself since this new *Patented* radiator appeared.

The feed chamber and the top radiator are so constructed as to allow communication between them which brings the opening of the fire flues of the radiator directly into the feed chamber, making the flues readily accessible for cleaning through the upper feed door. The dirt falls directly into the fire-pot, eliminating the necessity of taking the soot out by means of a narrow neck passage. This is a big advantage to the owner as a radiator that is easy to keep clean will be kept clean. And this means increased heating efficiency.

This improved Wise Furnace also has the New Cellular Fire Pot. Our catalog shows this construction.

And a New and Better Steel Furnace

WISE STEEL FURNACE

TO enable you to confine your *quality furnace* business to one house the Wise Steel Furnace was created. Notice that the Wise Steel Furnace is a *better* steel furnace having features that make it *last* longer where others have weak spots.

The bottom of the radiator on the Wise Steel Furnace has a *Cast Iron Soot Box and Clean Out.*

This you know is the big weak spot in other steel furnaces. The Wise Steel Furnace like all Wise Furnaces is *Guaranteed* high quality. It possesses all the latest scientific heating features and all modern conveniences. It is *riveted* and *welded* and has *special design grates.*

Write for the Wise catalog No. 23 and special circulars

The Wise Furnace Company
AKRON, OHIO

THE PIPE AND ATH-A-NOR PIPELESS FURNACE

EVEN if this furnace was ordinary in design you would prefer it because of its superior quality and heavy construction

—*but*

with its famous

THREE-WAY AIR BLAST

which makes it

SMOKELESS

you can easily see that your customers will be easier sold and better satisfied with the Ath-A-Nor.

The special design of the Ath-A-Nor which makes it more efficient than other furnaces is *patented*—therefore exclusive.

We can convince you that the Ath-A-Nor will make better profits for you.

The May-Fiebeger Co.
Newark, Ohio

Standard Code and the Weir Steel Furnace

-an unbeatable combination-

The MEYER FURNACE Co.
Peoria-Illinois

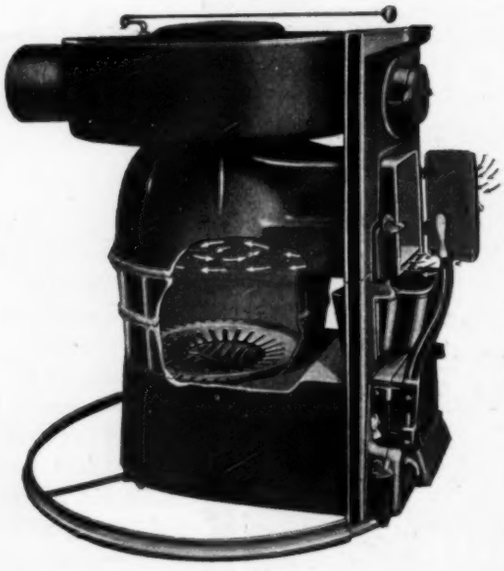
We are members of and believe in the NATIONAL WARM AIR HEATING ASSOCIATION

-and still more improvements

READY SOON

WATCH FOR FURTHER ANNOUNCEMENTS

IT IS EASIER TO SELL CODE THAN IT IS TO SELL AGAINST IT



BUT code don't mean a thing unless your furnace is such that it can generate the heat necessary to make the installation truly a code job.

The FLORAL CITY QUEEN IS OFFICIALLY MEASURED AND RATED, by the National Association and the ratings and information necessary, is stamped right on the front of the furnace so when you sell a FLORAL CITY you need have no worries as to whether it will deliver or not.

The almost straight firepot, solid cast radiator, upright shaker handle, two styles of grates, built in smoke burner, capped joints, ground fitted doors, are a few more features that make it easier to sell a FLORAL CITY than get along without one.

Remember we sell only to the trade.

STOCKS AT CHICAGO AND MONROE, MICH.

Floral City Heater Co.

Chicago Office
1654 Monadnock Building

MONROE, MICHIGAN

Detroit Office
4453 Cass Avenue

PRECISION MOULDED CASTINGS

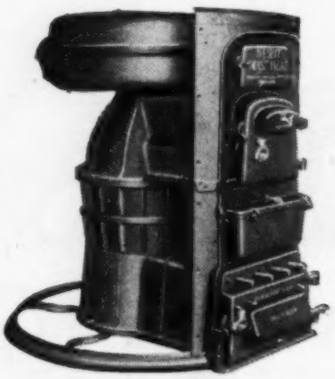
Machine moulding makes the castings of this new furnace uniform in thickness and perfect fitting.

Nesbit Moist Heat
REGISTERED
{OVERSIZE}
FURNACE

Machine moulding reduces our costs, increases quality and gives you and your customers more for your money.

A BETTER Furnace of outstanding value—one you can sell to your customers on Quality Points without having to ask an excessively high price—that's the New Nesbit Moist Heat Furnace.

Machine Moulding produces cleaner castings of uniform thickness and perfect mold, as well as a better product at less cost.



OUR new catalog tells all about this new Nesbit Moist Heat Furnace. It illustrates and describes its superior, up-to-date features.

It tells about its "oversize" construction, pouches that extend thru the front, brass bolts and hinge pins and a dozen other out-of-the-ordinary selling features.

Write for this catalog today.

STANDARD FURNACE & SUPPLY CO.
Complete Furnace Service at Your Command
OMAHA, NEBRASKA

Say you saw it in AMERICAN ARTISAN—Thank you!

The Point that Closes the Sale

You can sell some house owners on one point—others on another, and so on.

When you sell the Moncrief Series "C", you can sell anybody and everybody, for it embodies every point that should be found in a modern warm air furnace.

This is the furnace that gets the business. Send for details.

The HENRY FURNACE & FOUNDRY CO.

3471 E. 49th St. Cleveland, Ohio

We supply everything used on a warm air heating job.

DISTRIBUTORS

Carr Supply Co., 412 No. Dearborn St., Chicago, Ill.
August Bery & Son, Mack Ave. at Drexel, Detroit.
The Henry Furnace & Foundry Co., Pittsburgh, Pa.
Frontier Water & Steam Supply Co., 366 Oak St.—481 Elliott St., Buffalo, New York.
Johnson Furnace Co., Kansas City, Mo.
E. A. Higgins Co., 1112 Douglas St., Omaha, Neb.
Moncrief Furnace Co., Atlanta, Ga.
Moncrief Furnace & Mfg. Co., Dallas, Texas.
E. W. Burbank Seed Co., 29 Free St., Portland, Me.
J. F. Conant, Ry. Term. Warehse., Troy, N. Y.
Wilkes-Barre Hdwe. & Stove Co., 18-20 So. Washington St., Wilkes-Barre, Pa.
The Crawford Heating Co., Steubenville, Ohio.
The Henry Furnace & Fdy. Co., 923 Summit St., Toledo, Ohio.

EASTERN OFFICE
Room 1306, 11 W. 42nd St., New York City
E. L. Garner, Manager.

MONCRIEF FURNACES

ANNOUNCEMENT
TO ALL MONITOR-CALORIC JOBBERS AND DEALERS

The Monitor Furnace Co., of Cincinnati, Ohio, manufacturers of Monitor and Caloric furnaces and other heating specialties, has discontinued business, and this announcement is for the purpose of notifying all former dealers in Monitor products and the heating trade in general of the purchase of the above company by the Marshall Furnace Co., of Marshall, Michigan.

All the assets and equipment of the Monitor Furnace Co. have been acquired, including all patterns, flasks, trademarks, copyrights, and good will, etc., have been moved to the plant of the Marshall Furnace Co., at Marshall, and put into production, and Monitor products and repairs and parts for all current and obsolete models of furnaces are ready for distribution.

The furnaces will still continue to be manufactured under their former trade names and will be sold by the

MONITOR-CALORIC

Division of

THE MARSHALL FURNACE CO.

Monitor-Caloric furnaces will continue to be manufactured of honest materials, by competent workmen, skilled in furnace work, in a plant equipped with the very best of machinery for economical production, by a financially stable, old established concern, with one-half a century of successful operation behind it.

Repair parts orders should be sent direct to Monitor-Caloric Division of the Marshall Furnace Co., at Marshall, Mich., and you will receive castings made off the original patterns and a perfect fit will be assured.

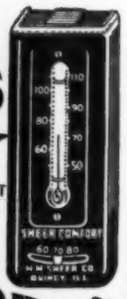
Attractive dealer franchises now open in many territories. Write for full particulars.

MARSHALL FURNACE CO.

MARSHALL, MICHIGAN

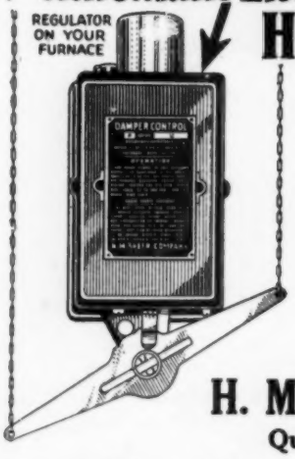
Cut Your Coal Bills

with



"SHEER COMFORT"

Automatic Electric HEAT CONTROL



Dealer's Price Only

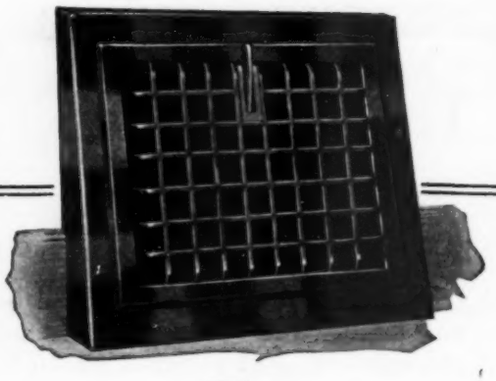
$17.55

Write or Wire

H. M. SHEER CO.
Quincy, Illinois

Dept. AA

Established 1888



The AUERISTOCRAT

of all registers, combining air capacity, decorative and concealing features.

Designed to conform with the Standard Code so they fit all standard boxes.

Auer Patented mechanical features make it perfect in operation,—quick and easy to install.

Auer's Save Hours and Dollars

The AUER REGISTER CO.
Cleveland, Ohio

CHAMBERLIN

a really successful AUTOMATIC HUMIDIFIER

HERE is an automatic humidifier which can be quickly and easily installed in any furnace and will give 100% satisfaction. It is made entirely of cast aluminum and the float valve reservoir is completely separated from the vapor pan thus preventing the formation of lime and scale on the float valve. The circulation of hot water back to the float valve is prevented by a special trap cast integral with the reservoir. The float valve is made of bronze and Monel metal which insures long life. The valve is entirely automatic and requires no adjustments. Write for circular describing the Chamberlin Automatic Humidifier and get our dealer proposition.

The Chamberlin Automatic Humidifier will evaporate about 13 gallons of water every 24 hours, the amount of water required in the average 8-room house.

Pat. Applied For

The demand for proper and healthful humidity in homes is increasing yearly. Every furnace-heated home is a prospect for a Chamberlin Humidifier. Inexpensive. Easily installed. Liberal discount to the trade.

CHANDLER PUMP COMPANY
Cedar Rapids, Iowa

STEARNS REGISTER SHIELDS

Any Size—Any Color

PRICE 50c

WRITE FOR SPECIAL DEALERS DISCOUNT

STEARNS REGISTER CO.
1234 Mt. Elliott Ave. Detroit, Mich.

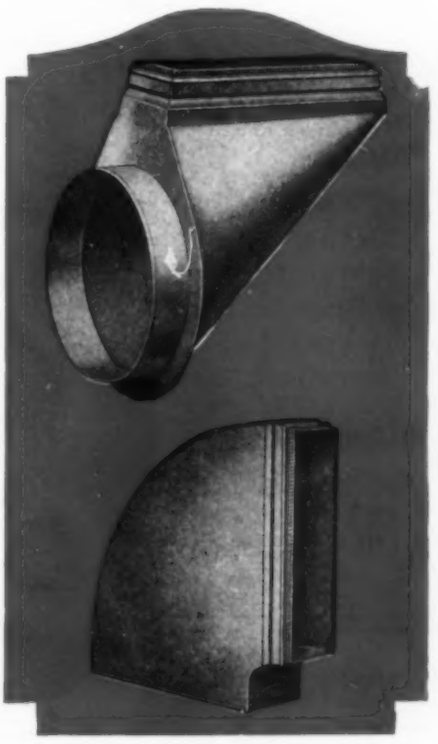
Say you saw it in AMERICAN ARTISAN—Thank you!

Registers
Wood Faces

HANDY PIPE

All Warm Air
Heating Supplies

Put the Convention Ideas to work for you NOW



NOTHING is more inspiring than to see men take advantage of ideas. Many more manufacturers of warm air furnaces and accessories have improved their line and brought out new ideas this year.

This shows that warm air heating *is* having a *healthier market*—the public is demanding better things and *getting* them.

Handy Pipe has always been high quality. It is at present up-to-the-minute in design—thousands of furnace men have already seen the importance of its *advanced construction.*

No Friction

NOTICE Handy Pipe has no *sharp* angles---all angles are graceful curves for easy flow, minimizing friction which means *better heating.*

WRITE FOR FREE SAMPLE

Start giving your customers the *best* in warm air heating by using this superior furnace pipe which is made by journeymen mechanics in a union shop.

Handy Pipe is carried by Jobbers everywhere—Write for catalog No. 47

F. MEYER & BROTHER CO.
PEORIA, ILL.

Mention AMERICAN ARTISAN in your reply—Thank you!

RYBOLT FURNACES

"Put Your Rule on the Rybolt"

Measure Up—

To Your **Standard** of Profit

To Our **Standard** of Dimensions

To the Owner's **Standard** of Satisfaction

The RYBOLT HEATER CO.
Ashland, Ohio

Write for Prices and Dealer's Terms

LIQUID ASBESTOS

In white or colors to suit your taste. The improved insulation and covering for furnaces and boilers.

IT'S FIRE AND WATERPROOF

Makes every pipe and fitting 100% seamless. Every heating plant should be properly insulated—few of them are. Here is a sales opportunity often overlooked by the average furnace dealer but one which offers a profitable business to those who take advantage of it.

It's so easy
It spreads
With a Brush

Ask for Catalogue and Special Dealers' Proposition

B. & F. Mfg. Co.
422 Court Ave.
Des Moines Iowa

"GEM" ADJUSTABLE REGISTER SHIELDS

Adjustable 10 in. to 19 in.

While the drudgery and expense of fall housecleaning are still fresh in their minds, is one of the best times to remind your customers that "GEM" Adjustable Register Shields effectively protect every room and all its contents from basement dust, dirt and soot. Retail at: "GEM" Floor Shield, Black, $1.25; Ox. Cop., $1.50; "GEM" Wall Shield, Black, 65c; Ox. Cop., 75c.

BEH & CO
1140 BROADWAY, NEW YORK, N.Y.

BUY FROM YOUR JOBBER

WHAT COLOR on furnaces has done to increase warm air heating sales.

WHAT the SQUARE CASING idea is doing to boost the popularity of warm air heating.

THE TRUNK LINE system and how the public likes the idea.

DEVELOPMENT of the CODE and CITY ORDINANCES.

THE part the GAS FURNACE is playing in Warm Air Heating.

THE present trend of the OIL BURNER in the Warm Air Heating field.

Some of the subjects to be covered in our forthcoming—

35th Warm Air Furnace Annual

Reserve your advertising space NOW---

AMERICAN ARTISAN
620 So. Michigan Ave., Chicago, Ill.

Say you saw it in AMERICAN ARTISAN—Thank you!

An Ace In Any Deal!!

Search through the whole deck of furnaces and you will find the "AFCO" Boiler Plate Furnace the leading ace, by any method of comparison you may care to make.

Check the riveted, gas-tight construction against any other method of fabrication—the riveted top and bottom. Make a comparison of the heavy gauge boiler plate steel used in "AFCO" furnaces with that in other furnaces—the one-piece pouches—the big, vertical heating surface and heating efficiency—the heavy, locomotive-type grates—the scientific smoke consumer and control of fire travel, and the many other features.

In any competitive deal for a heating job, the "AFCO" Dealer has all the arguments in his favor, because the "AFCO" furnace is the winning ace.

It is easier to sell "AFCO" furnaces than against them—get the free "AFCO" catalog and then decide which you will do.

Every Owner of an "AFCO" Furnace is a Booster

American Furnace Company

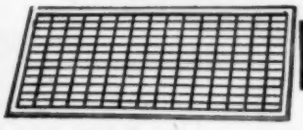
2719-31 Morgan St. **St. Louis, Mo.**

INDEPENDENT "Fabrikated" COLD AIR FACES

82% OPEN AREA

Enable you to make the openings in the floor small as possible and get the biggest possible volume of air. They are good-looking; afford sure satisfaction. Any size; any finish.

Independent Register & Mfg. Co.
3741 East 93rd St., Cleveland, Ohio
New York Branch: 150 Calvin St., Rochester



Send for CATALOG

PATTERNS FOR STOVES AND HEATERS
THE CLEVELAND CASTINGS PATTERN COMPANY
CLEVELAND, OHIO

PATTERNS
FOR STOVES AND HEATERS
FIRST-CLASS IN WOOD and IRON
VEDDER PATTERN WORKS ESTABLISHED 1835 TROY, N. Y.

IRON AND WOOD
STOVE PATTERNS
QUINCY PATTERN COMPANY
QUINCY, ILLINOIS

BRILLION FURNACES

Better Warm Air Heating calls for better furnaces—*at prices that are right.*

One Brillion will convince you that its quality can't be beat—its low price for this quality will be almost unbelievable.

And—we can give you prompt shipments on this wonderful value *right now.*

Send the coupon—
Let us tell you how we do it.

BRILLION FURNACE CO., 17 No. La Salle St., Chicago
200-300 Park Ave., Brillion, Wis.
Send me full details and catalog No. 80.

Name .....

Address .....

Agricola

The furnace that has grown faster than any other furnace in America

The vast Agricola factory has been in *full operation all year.*

Here is the simple reason:

Agricola is a finer furnace, modern in design and built of better quality iron.

Agricola is a product of *modern manufacturing methods* and, therefore, *costs are reduced,* and *production increased.*

Agricola Furnaces are *machine molded* in one of the *best equipped, most modern, newest* and *largest* furnace plants in the country.

Agricola enjoys an enviable iron and labor market.

Agricola has given the trade its first true *mass production high quality furnace.*

Agricola is the modern furnace—machine molded for the machine age

Agricola Furnace Company

GADSDEN, ALABAMA

Agricola

The A-C
AUTOMATIC
HEAT BOOSTER

FOUR BLADE FAN

10 INCH OPENING

FAN UNIT

MERCURY CONTROL

EMMERSON MOTOR

SOLD AT—

$37.50

COMPLETE TO THE DEALER

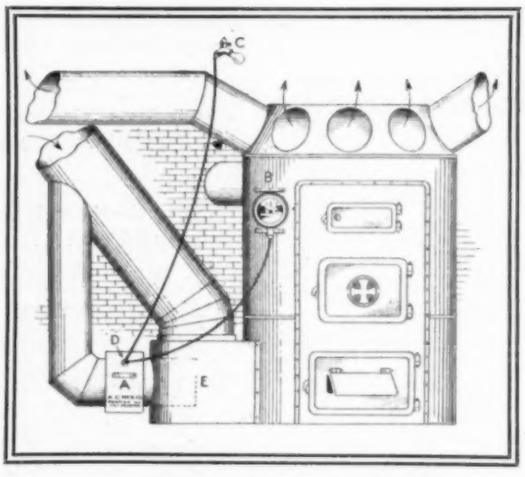
The Sensational—

PATENTED THERMOSTATICALLY CONTROLLED

A-C AUTOMATIC FURNACE FAN

SCIENTIFICALLY CORRECT

IT does not interfere with gravity operation—it has no louvres—no backdraft—no cheap flimsy parts. It is noiseless — no vibration — requires no care—unit is ready for installation.

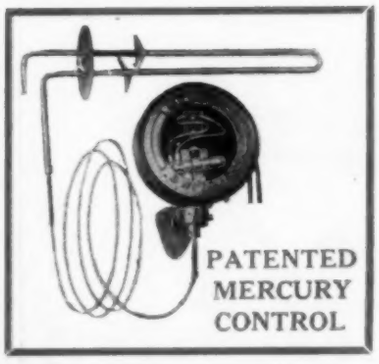


THE ONLY ONE OF ITS KIND

THERMOSTATIC Control Warm Air Furnace Fan licensed under Re. Pat. No. 15531, can be used only by the A-C Mfg. Co., of Pontiac, Ill. We control the patents on this simple, efficient, high grade furnace fan.

Highest Quality — Highly Efficient — Foolproof

EASILY INSTALLED—EASILY SOLD — BIG PROFITS



PATENTED Mercury Control fits in casing. When furnace delivers air at 130 degrees F. the fan automatically cuts in and runs until temperature in fire box drops to 110 degrees F. or less as set. Simple, positive and safe. Adaptable to any warm air furnace whether oil or coal is used. Its low price means *big sales*—big profits.

Send this coupon today—

A. A.
A-C MFG. COMPANY
417 Sherman St.
Pontiac, Ill.

Gentlemen:-

☐ Enclosed find check for $37.50 for one A-C AUTOMATIC FURNACE FAN.

☐ Send full details.

☐ Have a representative call.

Name .....

Street ..... *Town* ..... *State* .....

A-C Manufacturing Co.
417 Sherman St. PONTIAC, ILLINOIS

Founded 1880

Published to Promote Better Warm Air Heating and Sheet Metal Work

American Artisan

The Warm Air Heating and Sheet Metal Journal

Yearly Subscription Price:
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Foreign $4.00

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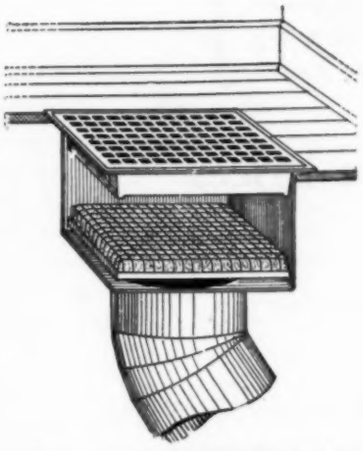
MAN CAN DO NO MORE

Whenever I have found out that I have blundered, or that my work has been imperfect, and when I have been contemptuously criticized, and even when I have been so overpraised that I have been mortified, it has been my greatest comfort to say over and over to myself that, "I have worked as hard as I could, and no one can do more than this."
—DARWIN.

Now!

A Register Filter



Easily installed—fits inside the register box, out of sight and out of the way.

Money Maker for Dealers

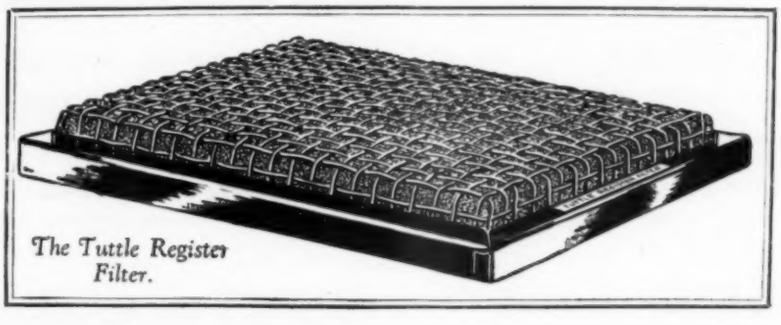
MAKE the Tuttle Register Filter standard equipment for your installations. It cuts down sales resistance. Put it into the hands of your salesmen who canvass for new business. It is a "door-opener" that earns a profit. It has proven the opening wedge on hundreds of repair jobs, too, that not only sells itself but sells the dealer who has it.

Mail $1.25 now for a sample! Be the first in your community to give to the public a product for which it is eagerly looking.

A Dirt Eliminator---Not a Spreader

AFTER careful research, supported by leading authorities in the field, we bring to you the Tuttle Register Filter—a filter that ELIMINATES dirt at the register — the LAST PLACE before the heat passes into the room; a filter that requires no force fan to insure the proper heat delivery and one WITHIN THE PURSE of every owner of a warm air furnace.

The Tuttle Register Filter goes into the register out of sight. It is a proven product, having been thoroughly tested in the laboratory of the *University of Kentucky*, an outstanding authority in warm air heating and in dust arresting and collecting devices. Really the thousands of delighted users, testing this filter every day under practical working conditions are proof enough.



The Tuttle Register Filter.

TUTTLE REGISTER DUST CATCHER CO.

114 East Chestnut Street LOUISVILLE, KENTUCKY

THE NEW ORDER OF THINGS

The third of a series of Straight Thinking Talks to Round Oak Dealers (and those who are going to be) —indicating the Direct Road to Greater Profits

What Assures Competitive Prices and Values?

A dealer can no longer truthfully say, "I can sell my goods at any price."

Such a man is either self deceived or has been a Rip Van Winkle in his business.

I do not mean that a man selling quality has to fear low prices.

But he must insist that what he sells must possess greater values, look the part, before he can sell profitably, when other attractive quality goods are selling for less.

Successful automobile dealers who make money sell only a car that impresses the buyer as being more for the money.

And this identical policy which has succeeded in the automotive industry, will create profits for the Round Oak dealers.

We have designed, for shipment next month, specialties—that in quality-merchandise value—appearance, and in consumer appeal—*are right.*

Fred R. Dowsett.
Vice President and General Manager

THE BECKWITH COMPANY, Dowagiac, Mich.

"Round Oak Folks" Established 1871

American Artisan
The Warm Air Heating and Sheet Metal Journal

Vol. 96 CHICAGO, DECEMBER 8, 1928 No. 23

The Changes 1928 Has Brought Us

Big Changes of Opinion and Not of Fact—Price Levels Unchanged

CHANGE is the only absolutely dependable factor in business. Conditions are constantly changing; our customers change, our product changes, our personnel is going through a constant state of flux. Hardly have we adopted one method after thorough study but competition or new discoveries require a change; hardly has one man proved himself to be "exactly the man for the place" but he finds it necessary to leave; and it is just when we flatter ourselves that we have finally "got everything fixed up" that the need of change seems to become most urgent. This need of change, of constant change, is the only thing we can count on as unchanging.

But what a bore business would be otherwise! Change brings opportunity now to one and now to another; styles change, and the lucky — or far-sighted — manufacturer who is stocked up with the new novelty can brag of being a good business man. Our tax laws change and the astute treasurer gets a new opportunity to show his ingenuity in holding down expenses. There would be no game of business were it not for this constant change, and mighty little chance for the youngsters.

1928 Changes Affect 1929

Each year brings its quota of change. There are changes, of course, brought by the forces of nature. There are slowly developing forces at work with their constant exhibits of change. Each year, however, has certain distinctive qualities revealed by rapidly moving trends. 1928 has brought such changes, and we can prepare better for 1929 if we recognize their characteristics, since they are the jumping-off places for next year's race.

The most striking change which has come to a head in 1928 is doubtless the new investment policy which American capitalists—which now means almost everybody—are pursuing. For years, bonds have been regarded as the only real "investment" medium; stocks were all right for speculators, but bonds were alone compatible with safety. A few years ago, however students of finance began preaching the then utterly heterodox principle that there is greater safety in well-selected stocks than in bonds, since the purchasing power of the income was better assured.

The New Investment Idea

The new investing public was slow to accept this new doctrine, especially since the investment houses on which they relied for advice were almost all selling bonds and preferred stocks exclusively. For some years the public has been mulling over this idea, however, and watching how it worked out; many of the more daring have experimented with stocks as part of their investment holdings, and have had every reason to be satisfied.

The year 1928 has seen the public taking hold of this idea and making it unqualifiedly the basis for its investment program. Without doubt we have gone to extremes and have purchased stocks for investment purposes which can hardly qualify for this purpose. More than this, and especially in the last few months, the price paid and the resulting yield have been forgotten. The public is obsessed by prospects for future appreciation in earning power, rather than present yields.

The Results Are Far-Reaching

In consequence of this change in our definition of the word "investment" we have not only had a remarkable bull market but businesses of all kinds in every section of the country have found it profitable to offer some of their stock to the public. Public participation in the ownership and, theoretically, in the management of our industrial and merchandising businesses has increased marvelously.

This change in public attitude has also contributed to the rapidly increasing number of mergers. Firms that were too small to make public financing attractive have been joined together into a unit whose stock could be listed on the public exchanges. Foreign businesses also are sending their securities to us—in return for our good money—and are helping to satisfy this almost insatiable demand for "investment stocks."

Let us hope that all these new stocks prove up well as true investment securities, or there may come a reaction which will make this form of financing, so highly desirable from the corporation standpoint, less popular in the future.

Is Business Now Professional?

Another change in public attitude which has come to a peak in 1928 is

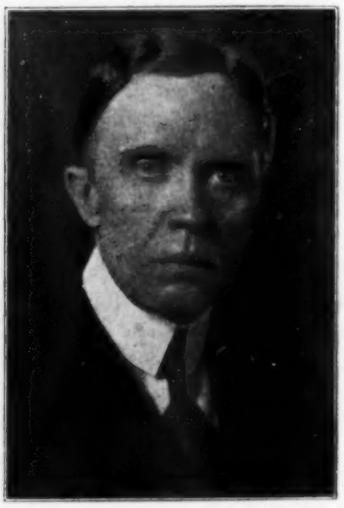
(*Continued on Page* 78)

Buffalo Meeting National Warm Air Association Goes Over Big

See Much Encouragement Held Out for Future Development of Industry

By George Duerr

ONE of the greatest mid-year meetings which the National Warm Air Heating Association has ever held, in point of giving the dealer constructive ideas on how to make his business produce greater profits, was held at the Statler Hotel, Buffalo, New York, Decem-



Professor A. C. Willard
University of Illinois

ber 4 and 5, 1928. A vastly increasing registeration was recorded, furnace installers coming from the New England states, New York, Pennsylvania, Ohio, Indiana, Michigan, Illinois, Wisconsin and many other points even farther away who three years ago could not have been dragged to one of the meetings in a straight jacket. All of which means that warm air furnace installers are waking up to the fact that the National Warm Air Heating Association has something definite to offer them in the way of information that will assist them to become better business men.

Looking over the attendance at the first meeting, which almost filled the large ballroom of the Statler Hotel to capacity, President Charles E. Hall, of the Hall-Neal Furnace Company, Indianapolis, voiced the opinion that the selection of Buffalo as a meeting place had been thoroughly justified and the attendance at the meeting proves that interest in the work the association is doing is growing as knowledge of this work seeps down farther and farther into the ranks of the furnace installers. Therefore, in the opinion of the board of directors of the association, as expressed by President Hall, the research work must continue, and in view of this fact it will soon no longer be possible to be just good guessers in the installation of furnaces.

"Conditions are rapidly changing," said President Hall, "and all of the work must, therefore, be speeded up to meet the needs of the times. Business is getting away from the warm air heating industry that it should rightfully have and must put itself in a position to get in the very near future. There is much of the groundwork still to be accomplished before effective result-showing work can be done."

President Hall, at this point in his address, made a strenuous plea for the discontinuance of cheap, cut-throat competitive work. "Such installations always have and still are proving a discredit to the warm air heating industry and they must cease. The research work that is being carried on is costing a great deal of money and a great part of this work will be discounted if installations are to continue going in without regard to the correct engineering principles. At the present time conditions are such in the industry that some men are building up something which others are tearing down, and the latter are committing suicide in so doing.

"Manufacturers should make it their business to see that their salesmen know the revised codes and that they do everything in their power to teach their dealers how to make money for themselves."

In closing his address Mr. Hall spoke of looking forward to a big future for the association, and if the association is successful in carrying out its program, the natural consequence will be that the industry as a whole must be successful. He paid high tribute to the Better Business Committee and the work it has done during the time elapsed since its formation at the Chicago meeting in April, many of the men comprising this committee spending not only their time, but paying their own expenses while doing association work.

It is the aim of the association eventually to have all the furnace

Professor J. D. Hoffman
Purdue University

manufacturers as members and in addition about 10,000 co-operative members.

Shakespeare as a Salesman

Arthur P. Lamneck, secretary of the W. E. Lamneck Company, Columbus, Ohio, introduced the next speaker, W. B. Burruss, as a "mas-

ter salesman." Mr. Burruss is a salesman's councilor, with offices in the Fisk building, New York, and also spends a great deal of his time in Washington.

It is to be doubted whether a more dynamic speaker than Mr. Burruss has ever been on the program of any warm air heating association meeting, and all those warm air furnace installers and manufacturers who failed to hear him because of their absence from the meeting certainly were the losers in that deal.

At the outset Mr. Burruss stated that salesmen developed in good times are not as good as those developed in hard times, and it is due to this fact in a large measure that opposition from the outside has been able to creep in and take away a goodly share of the business. In other words, the public has been led to believe that some other system of heating is better than warm air. This outside opposition has succeeded in talking the public out of the idea of buying warm air heating.

E. C. "Buck" Taylor
Who Gets Things Done

From this beginning, Mr. Burruss went on to ask the question: "How do people get ideas?" And in reply he said, "We are governed by our prejudices. All selling is based upon the fact that people have prejudices, and in order to be able to sell anything, the salesman must first succeed in rearranging those existing prejudices. Habit is another factor which enters into and must be taken account of by the salesman if he would be successful. People buy from habit just as often as they do from prejudice, and if it is desired to make selling easy, the salesman must arrange to make habit and prejudice work for him instead of against him. In other words, row with the tide instead of against it."

Everyone has a reason for being in business and that reason is to make money, went on Mr. Burruss. Regardless of how benevolent or how interested a man may be in the welfare of others, in order to carry out his ideas of benevolence he must have money. Therefore he is, or should be, interested in Profit and not Volume, because big volume without commensurate profit shows only one thing and that is extreme egotism. It requires no great mind to make the deduction that it means nothing to do $100,000 worth of business a year if at the end of the year that business does not show a goodly return of profit.

It was estimated by Mr. Burruss that the warm air heating industry is only getting one-third of its share of the possible business to which it is entitled. If the statement by authorities that 500,000 furnaces are sold a year is correct, then the possible market for warm air heating equipment in new work and replacements is a million and a half units, and the reason why this vast business is getting away from the warm air heating industry is that every time you fill a hole in the basement with a furnace at a loss you close the door to a profit, and, in addition to the detriment which accrues to the installer from not having money sufficient to keep his business going in the proper manner, you have created a condition where more people in the country are now knocking warm air heating than almost anything else.

"If a warm air heating installation is to be put in right, it is absolutely necessary that the installer get a price which will make it possible for him to show a profit. The theory which some furnace installers work on—that people will not pay more—is all wrong, and as evidence of that truth ask yourself, 'Do people buy the cheapest cars

Allen W. Williams
Managing Director

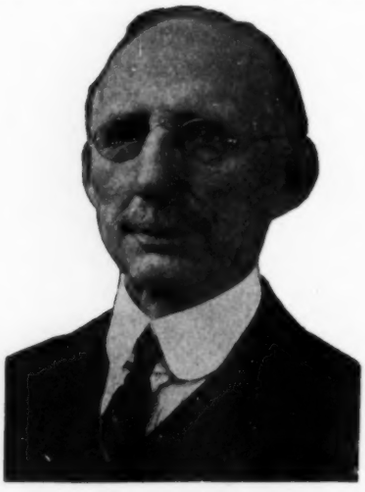
when they buy an automobile? Do they buy the cheapest radio? Do they purchase the cheapest clothes?' It has been my experience that close buyers are the most unsatisfactory. They are the ones who do the loudest kicking and are the first to refuse to pay when something goes wrong.

"Selling is the finest profession of all," continued Mr. Burruss. "Take the lawyer, for instance; he has a three-way job of selling—first, he must sell himself on the idea that his client is in the right; secondly, he must sell the judge on the idea that he knows the law; thirdly, he must sell the client on the idea of appealing the case if the decision goes against him."

Mr. Burruss' definition of salesmanship is this: "The job of making the other fellow see the proposition as you see it. Learning the art and science of how to work upon the human brain and heart in such a way as to produce action favorable to yourself. To master salesmanship requires continuous study."

In this connection Mr. Burruss mentioned a man whom he claims was the best salesman that the world

has ever produced — William Shakespeare. Why was William Shakespeare the greatest salesman that ever lived? Because he wrote 37 plays in the course of which he introduced over 700 separate and distinct characters. And in order



George Harms
Research Advisory Committee

to do this and make each one of these characters live he had to put himself in the place of each one of these 700 separate and distinct characters all trying to sell someone on some idea or thing. In doing this Mr. Shakespeare was himself required to be 700 separate and distinct salesmen. Think of it! Here's one man who had so schooled himself that he could think and act the way 700 other men and women would act under given circumstances and do it successfully. If one man could accomplish this, surely it must be possible for furnace installers to become at least good salesmen in themselves.

"What is required to become a good salesman?" was the next question of Mr. Burruss. He must have ideas, he must have confidence, he must be ethical, he must dress and act the part, he must be friendly. In the case of an employer, he must sell himself to his employes. He cannot expect a group of employes to work against their own best interests. He must be 100 per cent with his own organization. In order to secure loyalty from employes the boss must first deserve their loyalty. He must be true to himself.

"Scientific salesmanship is an art and it requires, in addition to the things mentioned above, that you find something in common with the prospect before you can get very far on the road to a sale. So many men feel that once they have produced an article, that is as far as their responsibility goes. They fail to recognize that no sale is complete until the customer is satisfied and has paid the bill. In summing up his remarks Mr. Burruss stated that the route to the sale is as follows: The groundwork must be so laid that first the prospect's attention is arrested; his interest aroused, his desire to have possession of awakened, the creating of an action toward securing that article, his satisfaction with the article and his conviction of your sincerity and desire to be of service to him is genuine. When Mr. Burruss had completed his talk he received one of the loudest cheers from his audience that any speaker on a similar program has ever received. His talk certainly reached the depths of the hearts of his audience.

Following Mr. Burruss, Professor J. D. Hoffman of the code committee spoke on the progress of that committee, giving several recommended changes in the present standard code. These changes will appear in a later issue of this journal. Professor Hoffman stated that up to the present time in the neighborhood of three-quarters of a million copies of the code have been distributed. About 1,000 ordinances have gone out.

Frank X. Schwab, mayor of Buffalo, greeted the men at this time and extended a hearty welcome, also giving a combination to the city locks.

George Harms was appointed as a successor to L. W. Millis on the research advisory committee of the association.

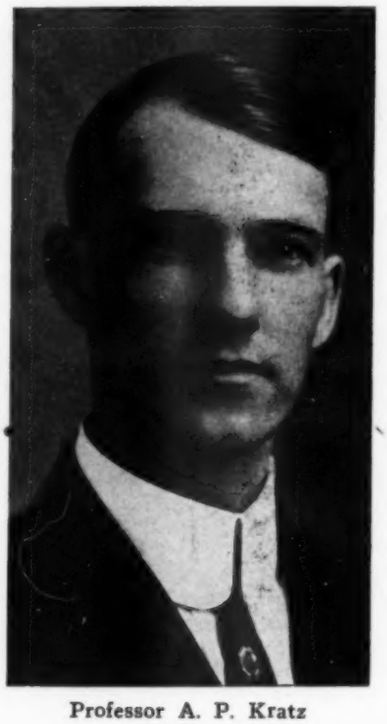
D. M. Hobart of the Curtis Publishing Company made a short address on creating a vogue and its acceptance through national advertising. The reasons given for the stupendous amounts of money now being spent annually for advertising were given by Mr. Hobart as (1) larger incomes, hence larger buying power; (2) increase in education, hence greater intelligence; (3) the advent of the automobile, which is changing merchandising trends.

Following Mr. Hobart came E. C. ("Buck") Taylor, chairman of the better business committee, with the report of the activities of this committee. What Mr. Taylor had to say in regard to the activities of his committee was heard with a great deal of interest and speculation. The consummation of Mr. Taylor's thought during his incumbency of the office of chairman of the better business committee is summed up in the following terse paragraphs as follows:

1. "There never has been and never will be a millenium in the warm air heating industry."

2. "The better business committee of itself cannot make anyone in the industry prosperous. It can only show the way."

3. "The better business committee does not intend to tell anyone how to run his business."



Professor A. P. Kratz
University of Illinois

The chairman offered several recommendations for the continuation of the program for action by the board of directors. What action

was taken during the meeting of the board of directors will be for that body to announce as soon as its plans are perfected.

H. T. Richardson, chairman of the publicity committee, reported upon the activities of his committee during the year and showed great progress in the work. An exhibit of manufacturers' mailing pieces was on display at the front of the hall, containing the advertising material, such as catalogs and folders, of the manufacturers who had responded to the request of the secretary for such material, also the association's advertising material was on display. Mr. Richardson announced that these exhibits would be shipped to Urbana immediately after the convention and will be placed on permanent display on racks for that purpose at the research residence.

C. H. Landwehr discussed the retailing of furnaces at a profit. In his opening remarks Mr. Landwehr stated that warm air heating is not going out, but is coming into vogue at the present time, and it is up to

E. B. Langenberg
Standard Code Committee

the warm air heating men to learn and continue to learn all they can about their business. He said that some men do not take the proper interest in their business to ever make much of a success of it. They do not seem to realize that the kind of air to be delivered into the homes is more important by far than the number of degrees, and that ten years from now the question will be what kind of air and not how many degrees can I get from this heating system.

To be properly interested in warm air heating or in any type of merchandising and to make a success of selling that product and service it is first necessary to—

1. Get the facts.
2. Recognize the equity of all concerned.
3. Have an open mind.
4. Be progressive—do it better.
5. Hard work. There is no easy way.

It is the opinion of Mr. Landwehr that it is no more difficult to show a profit than it is not to show one if the business is conducted on sound business principles. In this connection the all-important item is to keep the mind on pleasing the customer, how best to serve the customer in order to win his confidence in you and in your ability to take care of his wants in respect to his heating needs. Therefore there are four requisites which must be catered to when doing business. They are: the use of courtesy and tact in selling, the employment of care and precision in installing, the insistence upon receiving money when the job is finished, and the proper and instant servicing.

Mr. Landwehr stressed the fact that the job of servicing should take precedence over all others. A job properly serviced is the bird in the hand and, therefore, should receive first consideration when it comes into conflict with the new sale. The first task of anyone attempting to build a business is to please customers, and one way to do this is to be prompt with servicing.

Some men think too much about the engineering side of the job, and this is detrimental to sales. When it comes to a question of spending time on sales or engineering, sales should be the item to receive first consideration. Many men think that they are saving money by they themselves working in the shop making fittings when in reality they could be doing so much more by concentrating their entire efforts on sales and buying their fittings from the manufacturers who specialize in these lines.

I. L. Jones
Better Business Committee

Mr. Landwehr also expressed it as his opinion that a dealer who would concentrate on one line rather than to divide his efforts between more than one would make the most money in the long run. He also stated that he thought the manufacturer of furnace today is delivering a great deal for the money he gets for his products.

"The retail merchant," he said, "should use the Standard Code, but he should be sure to put a price tag on that heating system high enough to guarantee him a profit at the end of the year. The Standard Code is only good insofar as it produces a profit from each and every job in which it is used. If the installation in which the Standard Code has been used pleases the customer, but does not produce a profit for the dealer who made the installations, what good accrues to the dealer? If the dealer does not get one-half of the heating dollar that is paid by the customer he cannot make money."

Several questions were asked by Mr. Landwehr concerning the mode of conducting the business, among which was, do you start out with an adequate margin when taking a job

Group of Active and Cooperative Members of the National Warm Air Heating Association, and Their Friends Enjoying Banquet at Hotel Statler, Buffalo, New York, During Recent Convention Held There

or is your work taken purely on a price basis.

Three things stood out as important for the furnace installer to remember in the conduct of his business, according to Mr. Landwehr and are as follows:

1. He must organize his business and himself. Every man must know where he is going and see that he goes there. He must have a sales distribution as effectively as the producer.

2. Deputize every man to do certain definite things.

3. Supervise—the head of the concern must see that the work is properly done. The side time wastes are expensive.

It was Mr. Landwehr's opinion that the real competition to the warm air heating industry is the radio, the automobile, the fur coat. To overcome this the public must be educated to believe that the heating plant is first and not last in the list of requisites to the happy home and life. The furnace installer must get the spirit of "Get there ahead of the fur coat man" in order to talk to the prospect when he is in a position to buy and pay for the heating plant.

There are six ways in which all incomes are spent; namely,

1. Food. 2. Shelter. 3. Transportation. 4. Recreation. 5. Education. 6. Religion, and it is up to the furnace man to see that the public spends its proportionate share on shelter in accordance with the importance of that requisite to man's happiness. At the present time he is not doing that. Every man spends more money each year to maintain a car than he would spend if he were to tear out his furnace every year and replace it with a new one.

Mr. Landwehr's address was received with hearty approbation by his audience.

George V. Christy of the Johnns-Manville Company, gave a short talk on the value of insulating the home.

Wednesday morning there were two separate sessions, the manufacturers going to one by themselves, where they listened to George H. Charls, President of the Sheet Steel Trade Extension Committee, and the dealers holding a session of their own where the activities in research at the University of Illinois were placed before them by Professors A. C. Willard, Kratz and Mr. Quereau.

In the afternoon the manufacturers joined the dealers and listened to further talks and revelations on the research work.

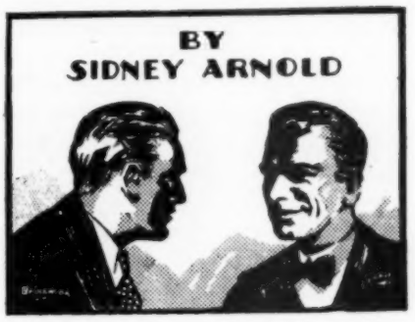
Grand Rapids Heating Engineers Hold Dance

A dinner dance furnished entertainment for the members of the Grand Rapids Heating Engineers. Despite a miserable rain, a very good attendance turned out. During the dinner Harry Rhodes entertained with several feature dances, occasionally assisted by Gus Ederle. A nice dinner put everyone in good condition for plenty of community singing, which was led by Mart VerMaris.

Again Harry Rhodes was called upon to assist in making the evening a success and was requested to sing a solo, "Brighten the Corner Where You Are." Harry, however, for the first time refused, stating that he did not wish to break up the party.

Dancing consumed the remainder of the evening and the history of another successful affair had been written in the annals of this very successful association.

RANDOM NOTES AND SKETCHES



I had a most enjoyable luncheon on Monday of this week as the guest of R. M. Moffitt, Chicago branch manager of the L. J. Mueller Furnace Company, at the weekly luncheon of the Advertisers' Post of the American Legion. The principal speaker was one of the Rockford to Stockholm fliers, who told of his experiences during the flight, which included the feeling of being lost to the world. It was very interesting and I want to compliment Mr. Moffitt on his hospitality. He explained that he uses this time every week for play time.

* * *

My old friend, Fred Hubsch, Winnetka, Illinois, who has been a regular reader of AMERICAN ARTISAN for over thirty years, sent one of his apprentices, John Chojnacki, in to me last Saturday to get some books.

We are glad to see our old friends start their young men in right by giving them good, sound advice on learning the sheet metal business.

Years ago, when Fred and a lot of other chaps I know were apprentices, such books as are available now on sheet metal and warm air furnace work couldn't be had, to say nothing about the feasibility of raising $15 to invest in but two such books.

Needless to say, it makes me feel good to see such a serious-minded young fellow learning the sheet metal business.

* * *

Law Abiding

Bandit (to bank teller)—And get a move on you! Don't you know I can only park my car out there for fifteen minutes?

* * *

An Endorsement

Mrs. Watts—How do you like the electric stove and cooker?

Mary — They're w o n d e r f u l, ma'am. Just think! Neither of them's gone out since I came here a month ago.

* * *

Might Be Used in a Speakeasy

A little girl was sent by her mother to the grocery store with a jug for a quart of vinegar. "But, mamma," said the little one, "I can't say that word."

"But you must try," said the mother, "for I must have vinegar, and there's no one else to send."

So the little girl went with the jug and as she reached the counter of the store she pulled the cork out of the jug with a pop, swung the jug on the counter with a thud, and said to the astonished clerk: "There! Smell of that and give me a quart."

* * *

What Flavor?

"Emily, is there anything you want in the town this morning?"

"Yes; you might buy a jar of that traffic jam I've been reading about."

* * *

Her Husband Was Nervous

"Julia," said the new-rich mistress of the mansion, "be sure to mash the peas thoroughly."

"What, ma'am?" exclaimed the puzzled maid. "Mash the peas?"

"Yes, I say, mash the peas. It makes my husband very nervous at dinner to have them roll off his knife."

* * *

She Went Them One Better

Some little girls were boasting of their respective families. They had passed from clothes to personal appearance, and finally came to parental dignity. The minister's little girl boasted:

"Every package that comes for my papa is marked 'D. D.'"

"And every package that comes for my papa is marked 'M. D.'," retorted the daughter of the physician.

Then followed a look of contempt from the youngest of the party. "Huh!" she exclaimed, "every package that comes to our house is marked 'C. O. D.'"

* * *

I received a letter from my friend, R. R. Wallace, the other day, which informs me that he is just able to sit up and read back issues of AMERICAN ARTISAN now after a severe attack of pneumonia which has kept him in bed since early November. Well, Bob, this week you read all about the Buffalo convention, and I hope you'll be up and about as usual real soon.

* * *

My friend, J. S. Hall of Davenport, Iowa, a warm air furnace salesman who has followed the game quite a while, and who has watched, with great pleasure, the development of the Standard Code, stopped in to see me on Wednesday of this week.

Mr. Hall helped get the Code through at Omaha, and he and I had a nice chat about conditions, past and present, in the warm air heating field.

Irregular Grain Chutes Are Often Met With by Sheet Metal Men

To Make Them Fit Required Positions Takes Skill and Ingenuity

By O. W. KOTHE, St. Louis Technical Institute

SOMETIME ago a friend sent me a model of a grain hopper or chute, which he patterned after another mechanic's ideas of design. It certainly was a novel piece of work, and the more I looked at it, the more it seemed to me like one of our young ladies dancing the Charleston dance. After turning the model around a few moments in my mind, another geometrical shape took place, and which is illustrated in the accompanying drawing.

Thus, by the proper attitude of inquiring, this friend was able to help contribute to the trade a useful fitting that may crop up in more lines of work than one. I suppose the mechanic who made the original Charleston thing was happy in a measure; but the worry he spent on it never repays for making what he did.

Mechanics at large would do well to take a greater interest and have their ideas crude, though they may be polished up, and so make them shine like a diamond. Every man has ideas; some are developed to a higher degree than others. But ideas that are crudely worked out will never be successful—they may answer the purpose, but never be a source of pride, where others will recommend you.

It's the same way thousands of tradesmen believe in pure luck. There may be such a thing as pure luck, but it only happens to about two people out of every 10,000 people.

Each of your men of the trade spend day after day hammering the steel into silver and the copper into gold; but it is only the exception that applies an exceptional "idea" and which makes him wealthy. Would you call him lucky for putting his idea into effect? Or would you call our friend lucky for sending me that grain chute, so you can have the knowledge of its development? What about the other mechanic who had the idea first and let it bury with the day's work? The chances are he has forgotten all about it today and has derived no benefit from it in credit or geometrical skill.

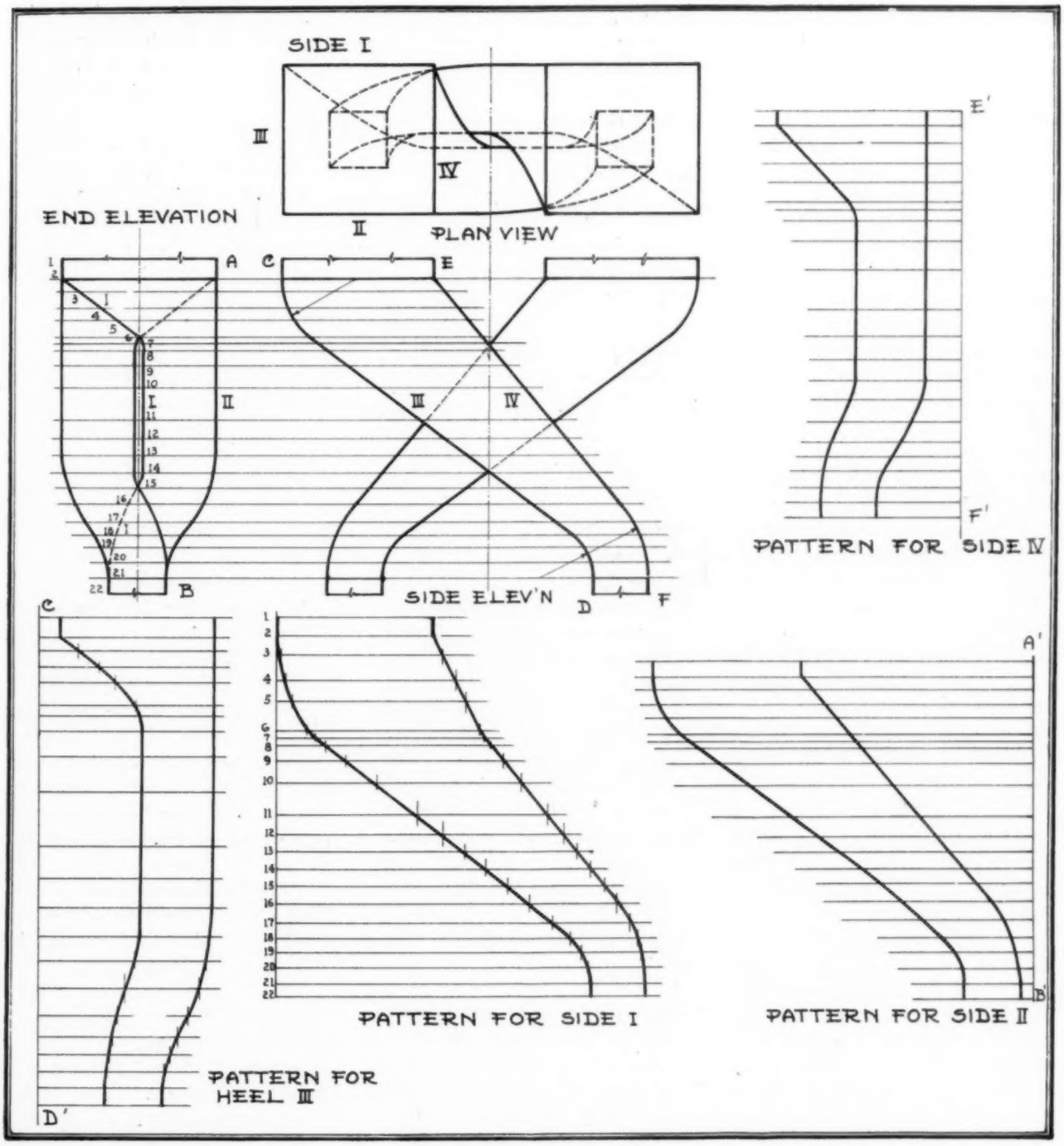
I am inclined to believe you can make more luck grow up out of your drawing board by practicing geometrical problems, by figuring areas, capacities, weights, strengths of materials, and the physics that go to make up your trade fundamentally, than to let what ideas you now have die a natural death. Every single thing we have in this world today is the result of an idea that flowered in some person's brain, and he had courage enough to try and develop it further.

It is a very common thing to hear both employers and men say I was lucky last week, I had a full week's work. This may sound good during certain slack seasons, but the idea is, why not analyze the conditions that bring you this work? Possibly you can improve on them, and so receive more full weeks' work during each following year. It is safe to say that in our modern commercial life very little luck enters—it's all mostly cold logic. Customers go to those employers whom they have confidence in and shops that only cater to a small run of work and are idle a large part of the year are so because the owners are too small and limited. They cannot inspire enough of the public to do business with them. Mechanics, too, who are out of work so much have not been able to sell their services to shops who can inspire the larger public and so keep their place running 12 months in the year.

Fundamental training is the basis on which to stand to sell your larger services. This is also acquired on your drawing board—where you have all the facts before you—to reason out and to describe to your own satisfaction. Take a problem like we have here; it must be reasoned pro and con, and the points you gather out of it you can describe to others, and this sells them on your qualifications. If you can follow this process for 500 to 1,000 trade problems it won't be long and you can impress your training on men who can use it—who are willing to pay for it and who have that knack to again resell your services as their services to a larger public.

Now with your drawing board in front of you and your instruments handy, we inspect our drawing. Here is a condition where the materials in the bias must be placed in opposite chutes, so this accounts for the position of the hopper. Again the chutes are directly over center of the bin opening and, therefore, the chutes must be made to pass each other and still not give too abrupt angles for friction. So we have given it the treatment we show in our plan, side elevation and end elevation. Possibly the side elevation is easiest to detail first, because lines can be drawn in a most direct fashion. The plan view can be dispensed with in shop work, but for experimental drafting it is well to fill it in.

When the side elevation is finished, the end elevation should be drawn, working from the center line and maintaining the altitude of side elevation. After this horizontal lines are passed across both elevation views. These lines are drawn at random, in such a way to fill



Patterns for Irregular Chute

lines in short curves. These lines then act the same as parallel planes passing horizontally around the surface at each point. If we then develop the girth from the width from the length, we have the pattern. Observe, the one view gives us the girth lines, another gives the shape.

So that to develop the pattern for the side I, we pick the girth from end elevation, such as spaces 1-2-3-4, etc., to 22 from edge line I, and step these spaces off in numerical order below side elevation, as 1-22. Then from each point thus placed, draw a horizontal line indefinitely. After this drop a line from each point in elevation line C-D and also from E-F. Where these lines cross those in pattern of similar number, we sketch a free hand line, which gives the outline for pattern required for side I.

The opposite side pattern II is developed in an identical way, using the girth from side II or line A-B, and set it below or above side elevation, as A'-B'. This can be developed the same as we did pattern I, only here space did not permit developing, and so it was moved over to the right hand side.

Now to develop the end pattern III, we pick the girth from edge line III, as C-D of side elevation. Pick each space separately and set

below end elevation, as C′-D′. After this draw stretchout lines and from all points in line 1-22 and line A-B of end elevation drop lines to cross lines in pattern of similar number. When this is done sketch a line through these intersections and you have the pattern finished as shown.

The pattern for side IV can be developed in the same way: picking the girth from side elevation line E-F and setting as E′-F′. Then continue the development as before until the pattern is finished. Edges must be allowed according to the joints to be made, whether for riveting, seaming or welding.

In forming these patterns, the elevation edges can be considered as stays, or metal stays can be cut out to these outlines and used as a gauge to form the patterns by. Thus pattern I would be bent to the profile of edge I of end elevation, while pattern II would be bent as line A-B indicates, and pattern III would be formed as line C-D of side elevation. In this way all patterns can be shaped up quite accurately and this gives so much less trouble in assembling.

What the engineer can plan out for the men is better than if the men have to do it themselves. It is like in a modern factory, where they have a staff organization that does all the thinking for the men who do the work. Men in the office have all the facts before them and they can plan out the work much quicker and often more advantageously than the men can do themselves. This is especially important in manufacturing plants. Under the old system men in the shop were given a job and that he followed up to a finish. He would walk all over the plant to gather up his things—he would go to other departments and wait to have certain parts shaped up, and then he would build up his work in a piecemeal fashion.

But today the staff organization is planning every step for men of the line organization. Everything is brought to the men—all they need to do is produce, and the finished product is taken away again. Thus so many sheets are broght for the man to make his work—if he spoils one sheet it is noticed and it goes against the man's credit.

Contract shops are not so well organized as yet, but men with modern equipment follow the same theory. Many an employer gives definite instructions to his foreman, which the men never hear. It is noticeable, though, when a helper pulls a certain number of steel sheets to your bench to make a job. It is also noticeable in the time cards, everything tends toward closing up loopholes. This also is a reason why all of your hopes and dreams are bound up in your drawing board for your future. Without a drawing board and its training a mechanic has no business to cherish any future hopes or dreams of the better things of life.

Sheet Steel Trade Extension Committee to Start Extensive Campaign

To Promote Wider Use of Sheet Metal Products

THE Sheet Steel Trade Extension Committee, with headquarters in the Terminal Tower Building, Cleveland, is undertaking an extensive campaign to promote the wider use of sheet steel in various fields.

The committee represents about 97 per cent of the sheet tonnage capacity of the country.

The advantages of sheet steel such as economy, durability and fire-resistiveness will be presented to fabricators, sheet metal contractors and to the consuming public.

In commenting on the trade extension program, George H. Charls, president of the association, said:

"The replacement of other materials by steel is a subject of vast economic importance, and no one person is in a position to grasp its entire significance or to forecast the extent of the movement.

"The advantages of steel are manifold. First, the source of supply is practically inexhaustible. Second, steel can be readily worked and it also possesses a high degree of durability. It combines great strength with light weight and, above all, it is fireproof.

"When industry learns to make the fullest use of these unique qualifications, society at large will benefit mightily.

"Furniture of steel, both for offices and homes, is now a reality. Homes of steel, where combustible materials have been replaced by longer lived, fireproof metal, are now economically feasible and will become the rule rather than the exception as quickly as the public learns to demand them..

"These two items alone permit a tremendous reduction in the maintenance expense of the American home—first cost is equal or lower, depreciation is reduced, insurance charges are reduced and the net result is money saved for other purposes.

"Another comparatively insignificent item in the total tonnage of steel produced is the steel used for roofing, particularly in rural communities. Steel roofs in the form of sheets, shingles or tiles, not only offer low-cost protection from rain, wind, heat and cold, but also possess the unique qualification of protecting against fire and lightning. Fire losses, in property and lives, in isolated communities from lightning amount to a staggering figure every year and the use of steel will reduce this to a minimum.

Two advertising agencies have been retained by the committee. The Griswold-Eshleman Company, Cleveland, will handle the advertising to promote the wider use of steel on farms and in rural communities, while the general advertising will be handled by the Gardner Advertising Company, New York City.

Can the Vocational School Bring Back the Well Trained Tinsmith?

What Will Be Required to Give Sheet Metal Industry the Men It Needs?

By F. W. Thorp*

I WILL answer this "Yes," and try to explain it from the viewpoint of a master sheet metal worker.

First we must all admit the undeniable shortage of mechanics, for it is almost an impossibility to find real tinsmiths. We must also admit that in the past decade there has been little or no united effort to induce the young boys to learn this trade, with the result that very few tinsmiths have been produced, and by tinsmith I mean the mechanic of old who could, from the bare sheet of metal, fashion any desired article, be it a wash boiler or a cornice.

These men are for the most part gone, and we have in their place the sheet metal worker, who is a specialty man, skilled in one or two branches of the trade. This comes from getting our apprentices from adults, for an adult will only keep on learning until he has mastered one or two branches; then he calls himself a sheet metal worker, and generally makes no further effort to complete the trade; thus he never becomes a tinsmith.

In the past years if a man applied for a job as tinsmith he was all that the name implied. It mattered not what the piece of work was, he produced it in a finished manner. But what a difference now. Try and put to work a mechanic of the last eight or ten years at all kinds of work. You will find that he is all right in a few things, but as an all-around tinsmith he is a complete failure.

We can blame this condition on the lack of interest of the young boy of today and to the lack of pride in their trade of our present mechanics. Another fault is the failure of the parents and mechanics to encourage the boy to learn the trade. You can advertise for a truck driver and get loads of them, but advertise for a boy to learn the trade and your answer will be, "How many hours do you work and what are the wages?"

I will now endeavor to explain my answer and solution of the question "Can the vocational school bring back the tinsmith?"

This can be done only with the help and backing of the mechanic and shop owner. The boys must be encouraged by the mechanic who takes pride and loves his trade as the greatest and most necessary trade, with the broadest field of any trade in the country. If these words seem strong ask the boy to take all the sheet metal work out of his mother's kitchen, take away every article of the tinsmith's craft, all the cooking utensils, stoves and furnace, for they are all or part of sheet metal. With all these taken away it is an easy matter to realize the scope and magnitude of this trade.

The sheet metal departments of our schools are all fully equipped with the most modern tools and machines. Thus a boy has the chance of using equipment the same as in the shops, and the work is done the same as in the shops.

The instructors are for the most part men who have had years of experience in sheet metal shops. Although there are some instances where men of lesser experience who have entered the instruction field. Right here is another case where the mechanics and shop owners must put their shoulder to the wheel by acquainting themselves with the schools and schoolboards and help and insist that their instructors of the future mechanics are the pick of the trade. They should be men of years of experience as tinsmiths and executives, with a field of knowledge that is the cream of the industry—men who have for their aim only the interest and betterment of the trade and a desire and pride in turning out tinsmiths.

It is too often the case that failures at the trade drift into instruction jobs. Their sole idea is to have a job, with no desire to advance the trade. This is where our labor organizations and master associations can step in and demand the best of men in their localities as instructors.

Our next duty is to see that the boy gets into school shops early, as it is a known fact that the best mechanics are the ones who start when they are 16 years old, as at this time they are in a plastic stage and full of ambition and eager to learn. This will allow him to finish his trade by the time he begins to feel like running wild. Also from 16 to 20 he can work for lower wages that the apprentice must receive, and he will have a better chance of being a finished tradesman; whereas if he starts after 20 years he generally learns one or two branches and wants a mechanic's pay.

So take the boy who is willing to give 4 or 5 years of his life in study, treat him as an asset, encourage and help him to see the value of this trade, impress on him the necessity of being a tinsmith and not a specialty man, get him to take a regular 4 or 5 year contract where he can attend school 4 or 5 hours a week. The schools are trying to give the boy a start as an apprentice, and with your help and cooperation we can give you boys that are eager to learn with a good knowledge of the requirements of the trade, with a knowledge of how the tools and machines are used, and he will be

*Instructor in sheet metal, Green Bay Vocational School, Green Bay, Wisconsin.

right at home when he enters your shop. Don't keep him cleaning up or driving a truck, no more than you would expect your boy to do it if he were in college, for this boy is giving 4 or 5 years at low wages.

I am an instructor in sheet metal, have a shop, and have been at the trade for nearly 30 years. When I look back I cannot help but put the blame on the mechanics themselves. If you grumble about your trade you can't expect anyone else to take it up, for a man that takes pride in his work and can do work to be proud of does not grumble.

Help the schools to help the boys, and you will have mechanics that will be the tinsmith of old and not specialty men that call themselves sheet metal workers.

Indiana Sheet Metal Convention to Be Big Affair

The general convention committee of the Indiana Sheet Metal and Warm Air Heating Association for the state convention, January 22-23-24, have perfected their organization. Sub-committees were appointed as follows:

Program Committee—Warm Air Heating: Guy A. Voorhees, chairman, Indianapolis; F. E. Anderson, Terre Haute; H. A. Beaman, Indianapolis; Harry Neal, Indianapolis; Fred Heads, Chicago. Sheet Metal: O. Voorhees, chairman, Indianapolis; Charles Roland, Richmond; Mike Shafer, Indianapolis; A. W. Dudley, Terre Haute; George Joslin, Indianapolis.

Entertainment Committee—George Thomas, Indianapolis; Otto Herrmann, Indianapolis; John Henley, Indianapolis; Charles E. Hall, Indianapolis; Homer Selch, Indianapolis.

Finance Committee—F. A. Wilkening, Indianapolis; John C. Henley, Indianapolis; Henry C. Thomson, Indianapolis; J. M. Oliphant, Indianapolis; Gus Hartman, Terre Haute; Charles E. Tharp, Fort Wayne; Virgil Roland, Elkhart.

Publicity Committee—George Duerr, Chicago; E. C. Carter, Chicago; W. C. Markle, Pittsburgh; Howard E. Jones, New York; John Rissing, Fort Wayne.

Hotel Committee—Jere Doherty, Indianapolis; Joseph C. Gardner, Indianapolis; Joseph Mattingly, Indianapolis; Jack Strahlendorf, Indianapolis.

Registration Committee—Harry R. Jones, Indianapolis; O. Voorhees, Indianapolis; Rolland Wilcox, Indianapolis.

Reception Committee—W. S. Waters, chairman, Indianapolis; Michael Class, Indianapolis; William Stewart, Indianapolis; W. F. Strate, Lafayette; Charles Gatz, Gary; Otis Burton, Orleans; Wallace Manrow, Goshen; Earl Clinton, East Chicago.

H. A. Beaman, vice-chairman, Indianapolis; H. L. Bornman, Jr., Indianapolis; Elmer Livezey, New Castle; George Erdheim, Gary; William Strassner, Anderson; John Balkema, Lafayette; Walter Class, Indianapolis.

Walter H. Ziegler, vice-chairman, Muncie; Creston W. Barnes, Kokomo; Etta Cohn, Chicago; Karl Roth, Terre Haute; C. M. Fulton, Logansport; Edwin A. Scott, New York; E. B. Hoy, Chicago; Russell Thompson, Indianapolis; Lee Gillispie, Cincinnati.

Courtesy Committee—Frank Doyle, Indianapolis; Lloyd Bowers, Indianapolis; Ed Daufel, Indianapolis; William Fredrick, Indianapolis; Rollyn Hawkins, Indianapolis; William Herman, Indianapolis; Henry C. Kern, Indianapolis; T. V. Lavery, Indianapolis; Charles E. Stevenson, Indianapolis; James A. Thomas, Indianapolis; Fred Boone, Indianapolis; Alex Thomson, Indianapolis; W. P. Meador, Indianapolis.

The program committee reported that they favored dividing the program time up into business sessions, probably opening the first day and being completed that day with the exception of the election of officers, which might be held over until the last day. A snappy program is planned made up of approximately twelve talks of about twenty minutes' duration, each followed by a discussion period of about the same length of time. It is not hoped or intended to cover a subject extensively, but it is possible to bring out the salient points of each topic in this way and also to inaugurate in the mind of each listener a logical train of thought which he can follow out at his leisure and to whatever extent his own business conditions make desirable.

The entertainment committee plans a banquet Thursday evening which probably will be held in the Indianapolis Chamber of Commerce dining room. After the banquet, tables and chairs may be pushed aside and a very good dancing floor made accessible.

The entertainment committee intends to feature particularly the entertainment for the ladies this year. They have under advisement plans for luncheons, theater parties, shopping tours and visits to certain Indianapolis factories manufacturing products of a special interest to ladies.

The special hotel committee appointed to investigate and arrange for a meeting place and convention and exhibit hall, reported that they had decided to come back to the Denison Hotel and had made arrangements with the hotel management for the halls and also for taking care of visiting guests. It is not necessary for either exhibitors or contractors to stay at the Denison, but the committee has arranged for reasonable rates for all who want to stay there.

A special courtesy committee was appointed, made up of Indianapolis sheet metal and furnace contractors, whose specific duty will be to extend Indianapolis hospitalities to the visitors. Their knowledge of the city, their automobiles and time will be at the disposal of the visiting guests.

Tuttle Filter Tested by University of Kentucky

Announcement of the perfection of a filter for use on warm air furnace which does not require a force fan or additional device for carrying the proper amount of heat into the home is being made by the Tuttle Register Dust Catcher Company of Louisville, Kentucky.

According to the manufacturers, this filter is an innovation to a warm air heating plant. The product in its perfected form comes as a result of experimental work in the

The Filter

laboratory of the University of Kentucky.

"Three principles were in the mind of the manufacturer in bringing to the warm air heating industry and to the public a long-needed filter," according to H. J. Cross, secretary of the Tuttle Register Dust Catcher Company.

"We have always believed that the only proper place to catch the charred lint that comes from a warm air heating system is at the register or the last place before the air passes into the room. Consequently, our filter is placed under the floor register or attached to a wall register. In effecting this ar-

rangement, our filter also is constructed so that the full capacity of the leader pipe can be delivered into the register box before the air is filtered.

"The second principle involved in a filter of any kind is the matter of quick and successful cleaning. The Tuttle register filter is a dry process, all-metal filter. To clean it requires only a slight tapping of the filter frame. The dry refuse separates itself from the filtering medium.

"Our final principle," Mr. Cross further states, "is to have a filter within the purchasing power of every furnace user. The reaction of the trade in the last few months indicates that our last principle has been fully met with.

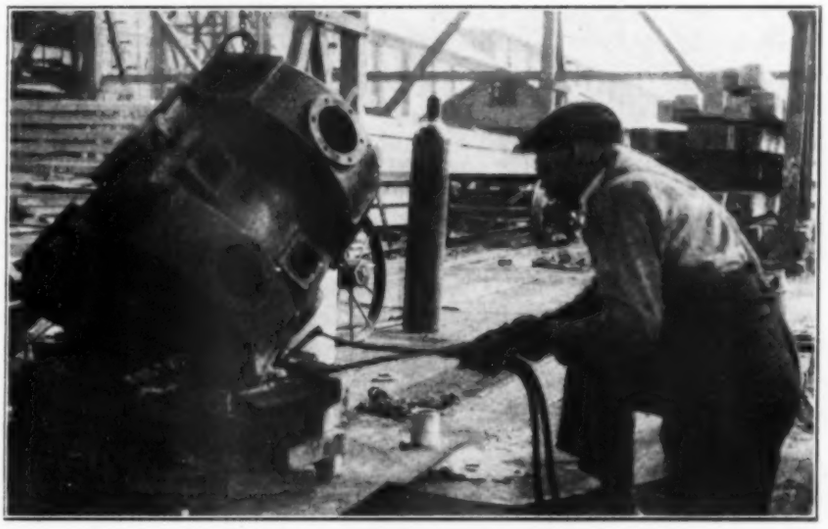
"Having a filter tested properly by an impartial authority was also considered to be a factor essential to the proper reaching of the members of the warm air heating industry whose standards have progressed so materially within the last ten years. Our filter was in the hands of Professor Lester S. O'Bannon, head of the department of heat engineering of the University of Kentucky, Lexington, for approximately six months. The complete report of this test by the University of Kentucky staff, copies of which may be had upon request, reinforces the experience of the manufacturer in several thousand home installations under everyday working conditions."

Oxwelding Cast Iron Cylinder Effects Great Saving

Some time ago a Western foundry had occasion to purchase a large air compressor from an Eastern firm. When the compressor was set up in the plant it was found that it had been damaged so badly in transit that when put in operation the cylinder wall leaked, and instead of pumping air it pumped water.

Inspection of the damaged compressor by the plant manager showed that the water was coming from a crack in the cooling water jacket with which air compressor cylinders of this type are usually cast.

Here was a job for the plant welder. He immediately dismantled the compressor, and after first veeing the crack in the cylinder wall, which extended between the two intake air ports, he slung the casting on an overhead trolley and ran it out into the yard. Next a small brick preheating furnace was built under the suspended piece. A charcoal fire was lit and the preheating flames confined to the damaged portion only. After sufficient heating of the cast iron piece, welding was begun. A good quality of cast iron rod and flux were used. The job was completed in a few hours without difficulty.



Showing Application of Welder

Estimates of the amount of time and money saved in this repair job were very gratifying. The plant suffered only a few hours' shut down and the total repair cost was but a trifle over twenty-five dollars.

What Metal Is Best for Lining Small Chimney Flues?

To AMERICAN ARTISAN:

I have had a number of inquiries regarding the use of sheet steel as a flue liner in small chimneys, with a flue measuring 12x12 inches or smaller. We use a liner of steel in larger chimneys such as those on school houses, where the smoke passes through the flue and ventilation takes place around it, but have had no experience with such use of steel on the smaller jobs.

Please answer the following questions:

What kind of iron is best for this purpose, black or galvanized? What gauge?

Would a round pipe be better than a square one, the use of which would leave a better air space around the flue?

What is the life of a flue like this under damp conditions such as we have in this country?

What way would you suggest the joint lap?

ELMER KRUEGER.

Birnamwood, Wis.

Providing Sustained Leadership One of America's Great Problems

Leadership in America is one of the main causes of our national supremacy. One of the greatest problems of democracy is to provide sustained leadership in all avenues of life. If it can maintain virile, capable leadership, true to the high moral standards and devoted to the ideals of democracy, there will not be degeneration within our nation. There will be continuous economic, social and moral progress. It is true that leadership founded upon birth or upon class has always decayed through degeneration.—*Herbert Hoover.*

Annual Property Loss from Defective Chimneys Becoming Millions of Dollars

Furnace Installer Should Insist Upon Tight Chimneys

FOR the successful operation of the furnace it is most essential that the chimney be right. The chimney carries away the waste products and provides the draft which determines the ability of the furnace to burn the fuel, the first essential to heating. Faulty chimneys cause most of the troubles in all types of heating.

The chimney must be absolutely air tight from, and including, the clean-out door at the bottom to the cap at the top. There must be but one smoke opening, a thimble or crock firmly cemented, into which the smoke pipe from the furnace is connected with an air-tight joint. The chimney should run straight with no offsets or projections. Fireclay flue linings are good if properly installed, but an unlined brick chimney with a full bed of mortar between bricks is also satisfactory.

The net inside dimensions should never be less than the outside diameter of the smoke collar on the furnace. An inside chimney is much to be preferred over one with one or more outside walls, because of better draft and the retention of heat within the building. The chimney must extend at least two feet above the highest part of the roof.

The smoke pipe should be short and straight with a decided upward grade to chimney. There should be a shut-off or cross damper near the furnace and a tight-fitting check damper on the chimney side of the cross damper.

Cold Air Returns

Too much emphasis cannot be placed on careful planning of the cold air returns or recirculating ducts. In most residences the location of warm air pipes is determined largely by the framing of the house structure and the installer has little choice. But the arrangement of returns is usually optional and hence is the greatest field for special treatment.

The function of the cold air ducts is to conduct to the base of the furnace a supply of cool or cold air, which by virtue of its greater density or weight will displace the warmer air in the furnace casing and thus cause flow. The maximum in comfort in the rooms of the house will be obtained if the air turnover is frequent. Rapid recirculation will prevent stratification of the air in the rooms and prevent cold floors. The best cold air duct is that one which will cause the maximum flow of coldest air.

Ducts drawing cold air from points near windows, particularly to the north and west, are most satisfactory if the furnace can be placed near enough to give short travel from the cold air grilles to the furnace. If the furnace location is not favorable to such a plan, it is advisable to draw the cold air intakes in toward the furnace, for the maximum air movement cannot be obtained in long ducts, which are usually complicated by sharp bends and abrupt changes of direction.

The air flow is seriously retarded by friction and turbulence in the cold air ducts. Friction is produced by rubbing contact between the air and the walls of the ducts, and obviously is greater in long than in short ducts. Turbulent flow at the points where the direction of flow changes abruptly or where the shape of the duct changes is even more conducive to stagnated flow.

To minimize friction and turbulence the ducts must be as short and direct as possible and all boots and shoes must be tapered or streamlined. The ducts must have a cross-sectional area at all points in excess of the aggregate area of the warm air pipes, and must slope toward the furnace.

Where the cold air enters the base of the furnace the connections should be kept below the level of the furnace grates, as the effect of heat radiating from the hot firepot into a high connection is to heat the duct and thus produce premature warming of the air in the return duct, retarding the air flow.

In buildings protected from the weather by adjacent structures, and in small compactly arranged dwellings a single large return duct in a hall is effective, but in isolated residences a divided system of two or three returns, from as many rooms, is most effective. In the Research Residence at the University of Illinois it has been demonstrated that the most equable temperature can be produced by having a return from each of the principal rooms on the first floor of the house. It is not good practice to draw return air from the kitchen or bathroom.

New Heat Regulating Device Operates on Temperature Difference

The main objective of man ever since he discovered that he could make himself more comfortable by having a heating unit in his home to fight off the wintry blasts for him has been to find some mechanical means of relieving himself of the responsibility of regulating the amount of heat in his home.

Discovery of the fact that some mineral elements are highly sensitive to changes in the temperature and consequently expand or contract as either heat or cold is applied to them has given man the very thing he needed to perfect a mechanical device to operate the drafts on his heating plant. Enter the automatic heat regulator.

The H. M. Sheer Company, Quincy, Illinois, has recently perfected a heat regulating device with

many desirable features which it has placed upon the market. This device is electrically operated. The main control is located in the thermostat "planted" in some central portion of the house. This thermostat is connected by wire to the damper control attached to the furnace. This damper control consists of a set of bellows which contain a liquid very sensitive to heat and cold. This bellows is wrapped with a resistance wire. The bellows in turn is connected to a rocker arm which in turn operates the chain governing the position of the damper.

When the temperature in the room above drops below that at which it is set, the thermostat automatically turns on the current. The current then flows through the resistance wire wrapped around the bellows heating the liquid contained therein. This heated liquid expands and operates the rocker arm, which in this case would open the damper on the furnace. As soon as the temperature in the room above has been brought up to the proper point, the current is shut off, the liquid cools, causing the bellows to contract which action closes the damper again. In case the current is shut off for any reason the damper retains a closed position so that the fire cannot run away with itself at any time.

Full information can be secured concerning this new device by writing AMERICAN ARTISAN or the manufacturers.

Do You Know the Key to a Man's Mind

There are times when the gate leading to a man's mind is closed and locked. You may have ever so many skeleton keys, but none of them will unlock the gate.

Try to make another appointment. Impress him with the thought that the business you have is of great importance to him and that the time you will require in explaining your business to him will be well spent. Don't enter into an argument.

Gain his confidence; impress him with your sincerity; convey the truth that you are advancing a cause of mutual interest; plain, dignified business sense always commands attention. A man's mind is like a safe with a time lock. It is useless to work the combination at the wrong time or place. Always use discretion, and if you work the combination properly you will open the treasure.

Labor Item Larger in Winter Than in Summer, Says Lon Shouldice

Lon J. Shouldice, President of the Michigan Sheet Metal & Roofing Contractors' Association, has an apt way of making a "wise crack" that sinks in without seeming to. He runs a column in the Michigan Standard Bulletin, the publication of the association, in which he incorporates some very pithy advice to members of the association. Read what he says to them this month:

"Fall is here again, and it seems but a few days ago since I called your attention to the rush of business that we always expect with the advent of spring. In that letter I mentioned some of the things that we should not do and others that we should do, etc.

"And now that we are up to our ears in the fall work, and are figuring work that will have to be done in the winter months when the weather is zero and conditions are at their worst for outside work, or in other words, when your workmen can accomplish only about half of a normal day's work, are you figuring sufficient labor on these jobs to take care of the conditions? Or are you going to take a chance that you can pick out some nice weather at the proper time and get the work done before another blizzard comes along?

"Of course, it would be fine if we could do that, but it can't be done, for I have tried it. The only thing left for us to do in preparing bids on outside work is to estimate our labor high enough to take care of the contingency of lost labor caused by winter blizzards, subzero weather, shoveling snow, etc.

"I am mentioning these facts now because this is the time of year when we are all busy and are likely to overlook the fact that most of the work we are now figuring will come along in the middle of the winter.

Can an Adult Learn? Professor Thorndyke Says Yes

Sheet metal contractors and warm air furnace installers who feel that they are too old to learn the new wrinkles in the sheet metal game and the Standard Code in the warm air heating industry can take heart again and burn a little midnight electricity. Here's the dope on whether or not you can teach an old dog new tricks.

Some recent studies of the capacity of grown-ups to acquire fresh skill throw new light on this question. One of the most interesting investigations is that of Professor E. L. Thorndyke of Teachers College, Columbia University. During the last two years he has conducted experiments with two groups, one averaging in age 42, the other 22. Both were compared with a group of children. The adults were taught to write with the wrong hand, to operate the typewriter, and there were classes in algebra, science, foreign languages, etc. For all three groups there were classes in reading, spelling, arithmetic and other elementary school subjects. In general, *both adult groups* learned *more rapidly* than the group of children. The group of older adults learned *almost as rapidly* as the younger adult group—roughly, about five-sixths as fast. The conclusion is that ability to learn increases until about 20, when it remains stationary for a time, provided the adult continues to study, and then declines very gradually. No one under 50 should be deterred from trying to learn something new by the fear of being too old, if he has developed the study habit.

Lack of opportunity or desire to learn now appears to be the explanation of why adults so seldom learn a new language or a new trade. But opportunity and desire have greatly increased everywhere in this country in recent years.

Illinois State Fire Marshall Finds Liquid Fuels Reduce Fire Hazards

Handling of Hot Ashes in Wooden Receptacles Done Away With

THE increasing use of liquid fuels has tended to reduce fire hazards, says a bulletin just issued by the Oil Heating Institute. "The great majority of dwelling fires start on roofs from sparks, in chimneys from burning soot, or in cellars from hot ashes," says the Institute. "Liquid fuel produces no sparks nor soot nor ashes. According to the report of the National Fire Protection Association on the Fall River (Mass.) conflagration of February 2nd and 3rd, which virtually destroyed six blocks in the business section of the city, with a loss of over six million dollars, gasoline and fuel oil in storage did not contribute in any way to the severity of the fire."

The bulletin quotes from the National Fire Protection Association report as follows:

"The large Mohican Hotel building was heated by a fuel oil burning equipment, but the tanks underneath this building were found to be intact after the fire, and it is reported that some thousands of gallons of oil were pumped out and salvaged a few days later. The experience with both gasoline and fuel oil tanks indicates that properly installed, buried tanks are not affected by fire above them even under conflagration conditions."

"This report," the Institute declares, "supports the verdicts of other authorities who have investigated the relative fire hazards connected with various types of fuels. As compared with coal, one of the country's leading fire prevention experts, John G. Gamber, State Fire Marshal of Illinois during the last two administrations and Past President of the National State Fire Marshals' Association, says: 'Careful study of all makes of oil burners since the inception of the industry shows that fully automatic burners using the better grades of burning oil actually reduce the fire hazard when compared with coal. No soot or sparks are formed. This eliminates all roof and chimney fires, which alone are responsible for more than 75 per cent of the dwelling fires. Also the handling of hot ashes in wooden receptacles is unnecessary. In fact, a credit on insurance premiums should be allowed owners of oil burners. With more widespread use, they are rapidly becoming an important protection that is certain to reduce fire losses in the country.'

"Users of oil heating equipment are further protected by the Underwriters' Laboratories, which refuse to approve oil burners unless they pass a searching examination in regard to fire hazards."

A Word to the Warm Air Furnace Industry

A national advertising campaign recently instituted for warm air heating has attracted much attention and brought forth a considerable amount of comment, most of it favorable and some critical. The favorable comment, of course, predominates because the copy is directing the attention of the public to something new and progressive in the warm air furnace industry. The more far visioned men in the industry see the necessity of combatting the radiator copy which constantly refers to the "old type" heating system. "The heating system which has not changed since its inception," and many other phrases meant to ridicule and discredit the warm air principle of heating.

The facts are that the warm air furnace (convection) heating system is nature's own system; convection heat, air motion and humidity are the essential requisites of healthful, comfortable and satisfactory heating, which fact can be proven by any college text book. We can even find proof in a junior high school physics book, and why an industry which represents millions of dollars in manufacturing equipment should passively sit by and let the radiator industry get away with their brazen misrepresentation is hard to imagine.

The aforementioned copy instituted for warm air furnace heating is featuring a phrase descriptive of a prevalent condition in home heating regardless of the type, i. e., "Baby High Frigid Zone." Think that one over! What is the temperature of the average home down on the floor where the baby is? Seventy degrees Fahrenheit at the breathing line is written into all heating contracts, and what does it mean? It means that your head is warm, of course, but 99 times out of 100 your feet are cold on cold days and the ceiling is stifling hot. If you don't believe this just walk down an open stairway on a cold day with most any of the heating systems of the past, hot air, hot water, steam, vapor or vacuum systems.

Heating engineers all agree that the heating system is upside down. Put a thermometer on the ground and one five feet up in the air. That tells the story. Nature heats the earth by radiant heat from which the heat is convected to the air, and the further you get from the earth's surface the lower the temperature. This is the direct antithesis of man-made systems.

The general public may not be able to explain it, but they know that the average attempt at heating still in vogue is awkward, uncomfortable and inefficient. The housewife who walks down to an open stairway registers a subconscious contempt for the present-day so-

called heating engineer. The engineer, the company or the industry that will bring out a new idea and has the independence and courage of his convictions surely will reap the harvest justly due.

No, Mr. Short-Sighted Furnace Man, we cannot hurt any cause by admitting and overcoming an inherent weakness. An outstanding fault with the warm air furnace industry is that we will not meet the facts face to face. Subconsciously we know that there is an inherent weakness somewhere, but we will not admit it to ourselves. We are even afraid to try to locate it for fear that there is no solution. The is capitalizing on our lack of moral courage. He is constantly informing us that our system is today as unsound as it was 50 years ago, while we merely squirm like the old woman who froze to death because it was too cold to get up and get more blankets.

The "Baby High Frigid Zone" is known to every mother in America. Then is it not good copy—isn't it wise? Isn't it better business policy to admit it and offer the solution than to pretend that it does not exist? The automobile has almost reached the apex of perfection because the manufacturer faced his deficiencies frankly and fearlessly. The man who insisted his car was so rugged and so perfect that it did not need pneumatic tires, or that the public would not pay the price of an electric starter, was "SPERLOS FERSENKT." There's a lesson in that for all industries that try to advance by standing still.

Sluggish Cold Air Causes Many Heating Plant Troubles

Many times a dealer is called to inspect a sluggish warm air heating plant and he first gives the entire installation the "once over" without making any calculations. This as a rule does not disclose much, therefore, his next step is to delve into its requirements, areas, locations, etc., and if these figures check satisfactorily he is then more or less "up a tree" so to speak. Just simply checking up on round pipe areas, furnace size and room requirements will not always tell where the trouble is in a sluggish heating system.

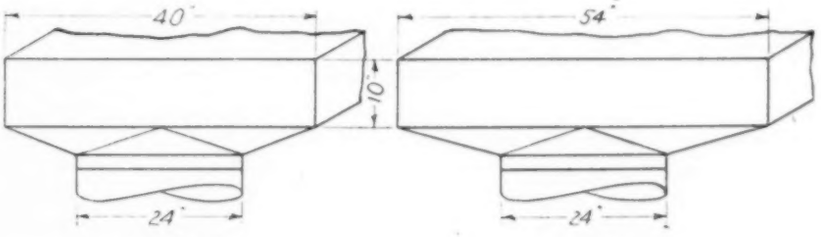


Fig. 1

Fig. 2

Sluggishness is always caused by excessive friction and to eliminate this friction is the secret of overcoming any system so affected. A sluggish warm air pipe which may be extra long or have too many bends will affect only the room or rooms to which it leads but a sluggish cold air return will affect the entire plant, therefore, it is very important to see that the return air system is free from friction as much as possible.

One place in every heating system where this friction is most likely to occur is in the square ducts. Practically every job uses square pipe to convey the return air from the inlet to a point near the furnace where a round pipe is used to carry this return air to the furnace. This is done to allow for headroom and is good practice providing the net air carrying capacity of the square or rectangular duct is equivalent to the round pipe which is supposedly the required size.

The accompanying sketches show what happens in any number of cases. Figure 1 shows a 24 inch round pipe leading to the furnace and having an area of 452 square inches and in order to keep a definite head room a box only 10 inches deep can be used. The installer then simply divides 452 by 10 and makes a box 10 by 45. A box 10 by 45 has a perimeter of 110 inches while a 24 inch round pipe has only 75 or approximately 35 per cent less rubbing surface. Therefore, when considering the dead corners and the increased rubbing surface of the rectangular duct how can it possibly carry the same amount of air as the round pipe unless this excess friction is taken into consideration?—*The Gas Draft.*

Soldering by the Oxy-Acetylene Method

In the plants of manufacturers of various kinds of equipment sold to the general public in large volume, such as automobiles, household refrigerators, oil burners, vacuum cleaners, radio and phonographic apparatus, incubators, window screens, copper radiators, electric motors, brazed brass and high carbon steel pipe, etc., the extent to which soldering is employed by the oxy-acetylene process is most astonishing. A survey of these operations received from the Oxy-Acetylene Committee of the International Acetylene Association classifies them according to the materials used.

There are three forms of solder: Lead, Tin and Antimony, Cadmium-Zinc and Copper-Zinc. The first melts at three hundred degrees Fahrenheit and the third at seven to eight hundred degrees Fahrenheit. In each case the percentage of the metals used in making up the solder alloys vary, with the result that these solders melt at a lower or higher temperature and with a corresponding decrease or increase of strength. Lead, Tin and Antimony solder has an approximate tensile strength of four thousand pounds to the square inch, Cadmium-Zinc solder of fifteen thousand pounds and Copper-Zinc solder of thirty to forty thousand pounds per square inch.

The use of these solders is based upon the principle that almost any metal will surface-alloy with another metal which melts at a higher

temperature, provided the surface of the latter metal is chemically clean and is heated to a temperature corresponding to the melting temperature of the solder used. In cases where the base metal is maintained in contact with the molten solder at this correct heat for a period of several minutes, the extent of the penetration of the solder into the base metal is quite remarkable.

In this respect, it would be logical to describe all of the so-called "Bronze Welding" that is spreading so very rapidly today as a species of "hard soldering." When bronze welding cast, malleable and wrought iron, high and low carbon steels, copper, monel metal, aluminum bronze and other metals and alloys that melt at a comparatively high temperature, it is merely necessary to have the weld areas clean and heated to a good red heat only. Then the Tobin Bronze, Manganese Bronze or other filler rods, if melted upon these weld areas, will instantly effect a joint of very high strength.

Lee Coller, Dowagiac Steel Furnace Co., Who Died Recently

This process has now been generally adopted for repairing breaks in cast steel locomotive frames. There are locomotives in operation with as many as three so-called "Bronze Welds" in their frames that are hauling long trains of sixty, eighty or one hundred heavily loaded freight cars daily and these bronze welds continue to stand up year after year under such service. It is, therefore, very evident that the strength of the soldered joint is primarily dependent upon the kind of solder employed in making the joint.

The oxy-acetylene flame has now been largely adopted as a source of heat for the application of these various solders because it possesses great advantages over the old type soldering iron or copper. For some of this work the required heat can be furnished almost instantaneously, thus effecting a great saving in time and more speed in production.

The first reaction in the burning of acetylene with oxygen is the production of carbon monoxide and hydrogen. The hydrogen, burning in the outer strata of the flame, envelops the molten solder and the heated weld area of the base metal protecting them from the oxygen in the surrounding air. This condition enables a skilled operator to obtain practically the maximum strength of the solder used.

In the production of work where the high heat required by welding might cause discoloration or coatings of oxides which would have to be removed before finishes could be applied, joints can be made by the insertion or application of a fluxed solder.

It is evident that a wide field exists for all manufacturers of oxygen, acetylene or oxy-acetylene welding equipment who make it a point to search out these hundreds of places where metal articles are being fabricated on a large scale and where soldering is used in the joining of the parts. The remarkable advantages of the oxy-acetylene flame as a source of heat for such work should be demonstrated to these manufacturers.

New Furnace Fan, Thermostatically Controlled, Put on Market

A new entry in the furnace fan field is announced by the A-C Manufacturing Company of Pontiac, Illinois.

This new fan is thermostatically controlled by means of a mercury control which sets in the furnace casing.

This is claimed by the manufacturers to be an exclusive feature of their fan.

They state that the A-C Automatic Furnace Fan is the four blade type in a ten inch opening furnished in a complete unit with mercury control ready for installation in by pass of any cold air shoe

The A-C Thermostatically Controlled Furnace Fan

with one, two or three cold air returns.

It is claimed that the mercury control starts the fan when the furnace delivers air at 130 degrees F. and stops when temperature in fire box drops to 110 degrees or less as set.

It is also claimed by the manufacturers that the A-C Furnace Fan has no louvers, that it does not interfere with gravity operation, and that it creates no vibration or noise.

Descriptive matter and prices are ready and same can be had by writing the A-C Manufacturing Company at Pontiac, Illinois.

Arthur F. Schoenoff, Waverly, Iowa, Engages in Heating Business

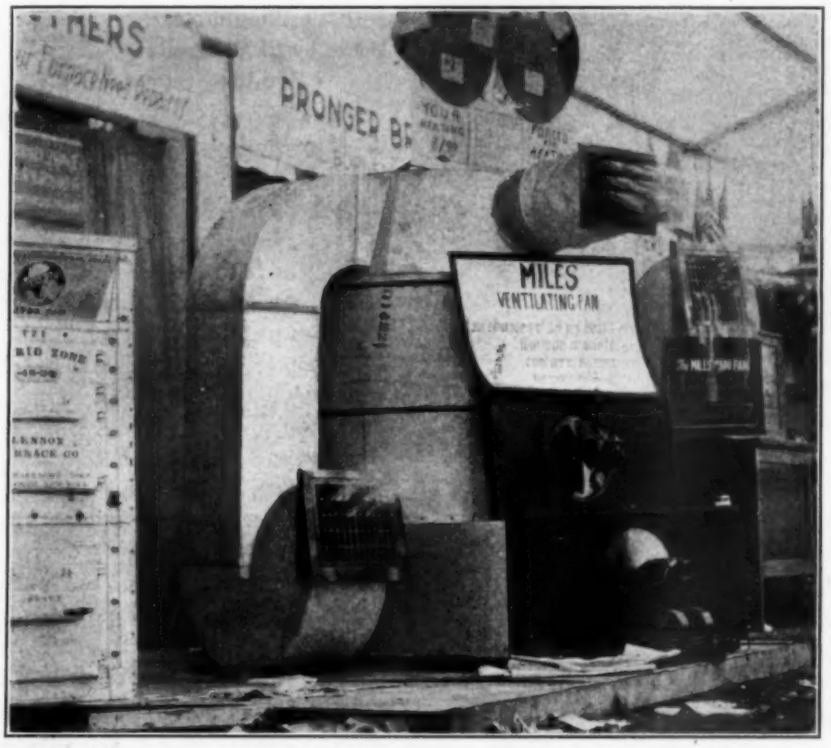
Arthur F. Schoenoff, Waverly, Iowa, has engaged in the sheet metal, warm air heating and plumbing business in that city. He will stress Standard Code warm air heating, and would like to receive catalogs on sheet metal and warm air heating products.

Pronger Brothers, Blue Island, Illinois, Have Business-Getting Display at Fair

Find Public Much Interested in Learning About Warm Air Heating

THAT sheet metal and warm air heating men find a strong appeal in the exhibit at county fairs is proved by the fact that rarely does one of these fairs take place that the sheet metal and warm air heating men do not participate in it.

The natural curiosity of the human draws him to an exhibit and makes him look for anything that is new, consequently he is in a very good frame of mind to be shown.



Forced Warm Air Display of Pronger Brothers Sheet Metal Works, Blue Island, Illinois, at a Recent State Fair

The accompanying illustrations are those of Pronger Brothers Sheet Metal Works, Blue Island, Ill., staged during the recent Trade Exposition held at Blue Island. The display was designed and erected by Alvin J. Myers, who has had charge of the shops of this progressive company for the past seventeen years. Mr. Myers is shown in one of the illustrations taking a test of the air being forced from the duct.

In this exhibit the aim was apparently to show the home owner how he is losing 28 cents of every heating dollar by continuing with his old system of heating. The two circles above the display represent the dollar as spent for the old way of heating, giving 25 cents as the stack loss, 21 cents radiant heat loss, 12 cents combustion loss, and 42 cents as heat used. In contrast to this the heating plant operating under the forced air principle shows a stack loss of 13 cents, a combustion loss of 12 cents, a radiant heat loss of 5 cents, while the heat used amounts to 70 cents. This is indeed an ingenious portrayal of the point which Mr. Myers wanted to bring out, and as the display was designed for the purpose of provoking questions about warm air heating, so it did, and all of the Pronger Sheet Metal men who were on duty during the exhibit were busy answering questions and taking the names of prospects for warm air heating. The display was later installed as an exhibit in the display window of Pronger Brothers Sheet Metal Works.

In two of the illustrations is shown the method employed by the Pronger Sheet Metal Works in taking the demonstrating equipment to the home of the prospective customer.

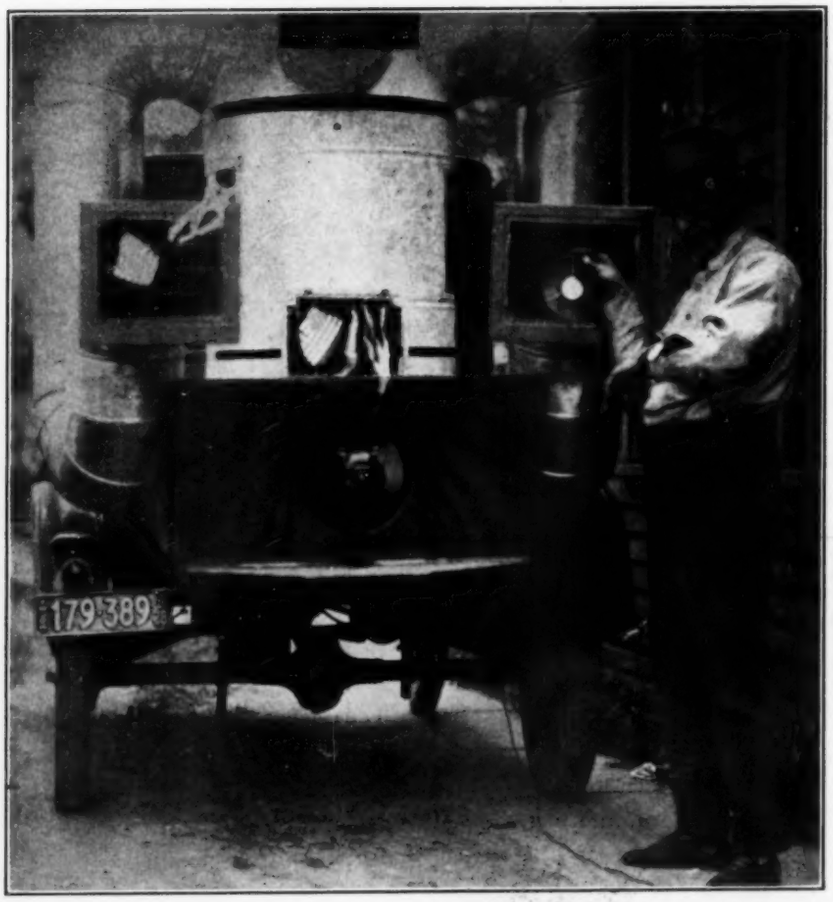
The company has been in business for the past forty years and they do everything in the way of sheet metal, both inside and outside, and warm air heating work.

All of the employes are thoroughly sold on the products they are marketing. They are kept informed on all of the latest developments in warm air heating, so that they are able to talk intelligently to the customers on warm air heating products.

A Sound Sales Appeal Proved So by Constant Application

A man who has had extraordinary

Furnace Mounted on Rear of Ford Car



Alvin J. Myers, Who Has Charge of Shops of Pronger Brothers Sheet Metal Works, Taking Test of Air Being Forced from Duct

success in getting people to do things they originally were not keen to do, replied, when asked for his recipe: "I always make my appeal from the other man's point of view, not from my own. I don't appeal to a man's altruism, but to his selfishness. I strive to make it very plain to him that it would be a good thing for him to do what I ask him to do. Of course, I never go to a man unless I sincerely feel that it would be a good thing for him to do what I ask.

"Selling—and most problems involve salesmanship—is largely a matter of simple psychology. You must paint a picture attractive to the man and then show him how he can fit into that picture advantageously to himself. I always keep in mind that every human being is more interested in himself than he is in me or anyone else. Therefore, my appeal is always built around him. Put a man into an attractive picture in such a way that it appeals to him and your problem more often than not is solved. Keep yourself entirely out of the picture except as a medium or instrument which is to put him into the picture."

That philosophy has worked ideally with this man. Can it be adopted or adapted for some of your own problems?

You May Revise Your Opinion of Your Competitor

Your competitor—he isn't the horse thief you think he is. The same opinion may be held by him of your immediate ancestry as you sometimes express yourself of his.

If you would give him the cooperation he is entitled to, he would very probably revise his opinion of you and prove to you that you are not always right. He has the same problems you have. The same field is open to him. He is in business to make money, the same as you are. And he has just as high a regard for profits as you have.

If you will start on that basis there should be no difficulty in the way for you two to get together and arrive at some common ground from where you can begin to function as a piece of machinery that is well oiled, rather than act as a foil for each other in your customer's hand.

If you believe everything the customer tells you about your competitor you will have to give him the same right to believe everything this customer tells him about you. Get together and stay there and you both make money and both have greater peace of mind.

No Sale Should Be Made Until Complete Terms Are Understood

Efficiency is unquestionably the watchword of successful, modern business. Competition in every line is such that if every leak or waste is not found out and eliminated, the delinquent one is soon in a bad way.

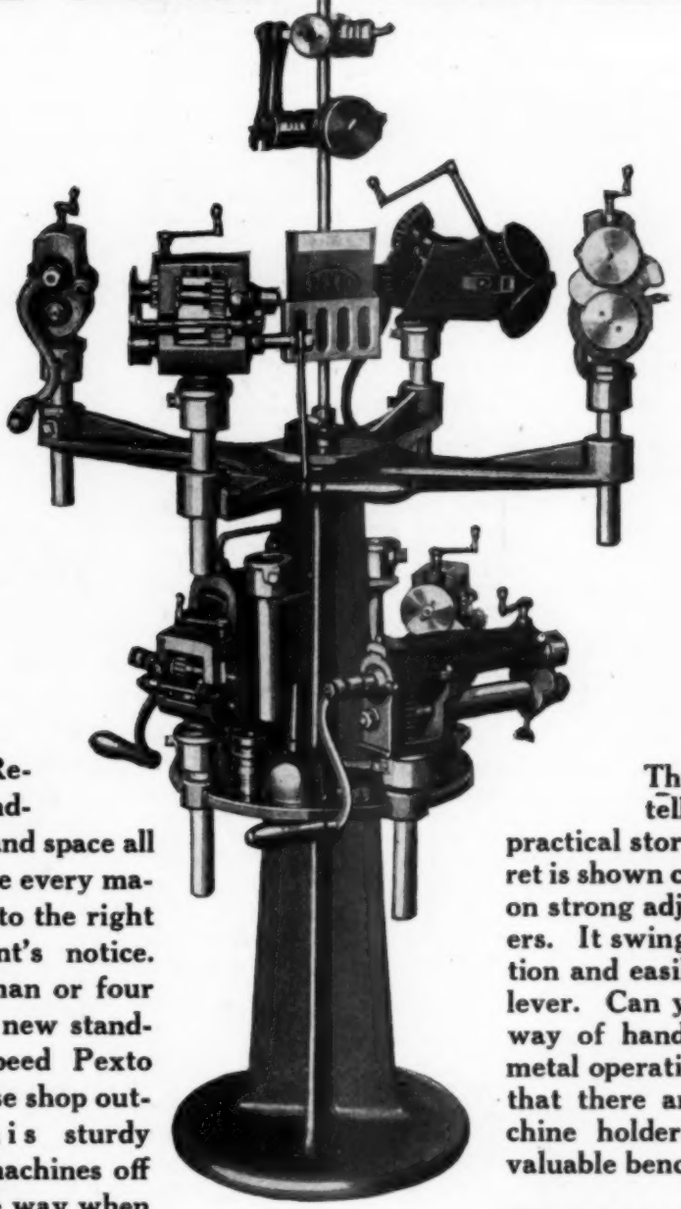
This does not only apply to shop and sales methods, however, but just as importantly to office and collection methods, and we should lay particular stress upon the latter, as it is the part of business that is universally neglected, the results of which are seen in the failures that come to our attention every day.

Sales are, of course, the prime necessity for the success of any business because they must come first. However, a thorough understanding as to terms of payment and prompt collection of the account when due is just as important. A sale should never be made until these things are mutually understood and the merchant is perfectly satisfied that the account will be paid when due.

Collections, therefore, should never be neglected, even though some help must be hired to look after them. What is lost by neglect will amount to more than the cost of the help. Continually working on accounts that are due will show results in reducing bad debt losses and in enabling the merchant to pay his own bills when due, thus building up reputation, credit and net worth.—*The Gas Draft.*

PEXTO

A TIME SAVER



This unique Holdall Revolving Machine Standard saves time, labor and space all in one. Time—because every machine can be swung into the right position at a moment's notice. Labor—because one man or four can work around this new standard—another high speed Pexto helper that will increase shop output. Space—for this sturdy standard keeps your machines off the floor and out of the way when not in use and yet they are right at hand when you want them.

The illustration clearly tells an interesting and practical story. The revolving turret is shown carrying four machines on strong adjustable machine holders. It swings quickly to any position and easily locks with a handy lever. Can you imagine a simpler way of handling successive sheet metal operations? You will notice that there are six additional machine holders, thus saving more valuable bench space.

The Peck, Stow & Wilcox Co.
Southington, Conn., U. S. A.

PEXTO

SHEET METAL WORKERS' MACHINES & TOOLS

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Alvin J. Myers, Who Has Charge of Shops of Pronger Brothers Sheet Metal Works, Taking Test of Air Being Forced from Duct

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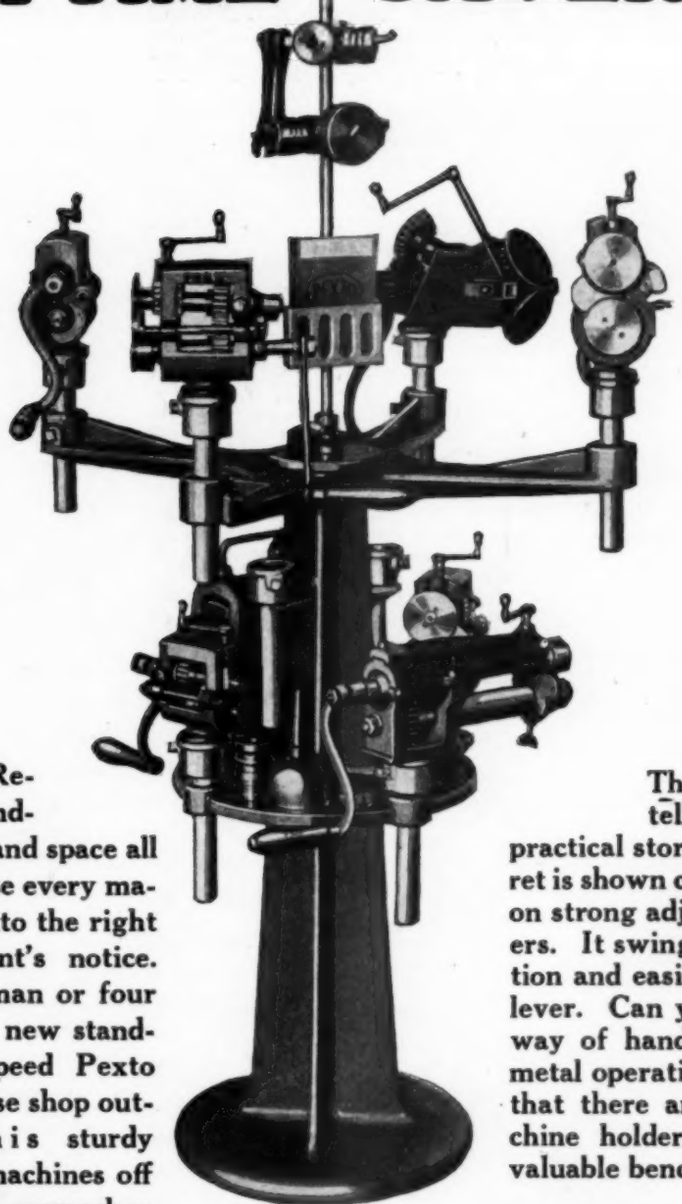

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WHO'S WHO, WHERE!

PORTLAND, ORE.—Ben Morris, 700 Union Ave. N., has warm air heating contract for Miss A. Pearson residence.

The Volume Furnace Co., 1002 Fessenden, has warm air heating contracts for residence of Henry Madigan and E. M. Vernon.

W. I. Spencer, 1161 Hawthorne, has warm air furnace contract for residence at 1537 Concord.

SEATTLE, WASH.—The Washington Sheet Metal Works, 1275 Westlake, has the roofing and sheet metal contract for Home Undertaking Parlor at 1412 Ninth Ave.

ABERDEEN, WASH.—Smith & Losli, 406 East Market street, have the sheet metal contract for the building of Roy K. Purkey Motor Co. building.

HOQUIAM, WASH.—Pryde Brothers, 200 8th street, have been awarded the sheet metal contract for the City Hall at that point.

PORTLAND, ORE.—The Portland Sheet Metal Works, 742 Holgate street, has been awarded the roofing contract for the State Tuberculosis Hospital at The Dalles, Ore.

LOS ANGELES, CAL.—The McCloskey Sheet Metal Works has the ventilating contract for the Holmes Investment Co. building in Long Beach, Cal.

SAN FRANCISCO, CAL.—E. K. Kauffman, H. S. Fairchild and W. W. Norton have engaged in business in the Rialto building, under name of Electrogas Furnace Company.

The Forderer Cornice Works, 269 Potrero Ave., has been awarded metal window contract for Franklin Land Co. office building in Oakland, Cal

CEDAR RAPIDS, IA.—The Hawkeye Tin Shop, 96 2nd Ave. E., has the furnace contract for three residences of Henry S. Ely & Co.

IOWA CITY, IA.—Schuppert & Koudelka, have been awarded the heating and sheet metal contracts for E. M. Piper.

CEDAR RAPIDS, IA.—Ilten & Taege, 210 S. 1st St. W., have been awarded the hot air heating contracts for residences of Frederick A. Stark and Bruce A. West.

WATERLOO, IA.—The H. B. Fereday Sheet Metal & Furnace Co., 527 Cottage street, have the contract for furnace of F. E. Watkins residence at 921 W. 11th street

The Trainer Sheet Metal & Furnace Works, 710 Jefferson street, has the warm air heating contract for residence of F. E. Watkins at 928 W. 9th St.

The Bovee Furnace Works, 180 W. 8th St., has the warm air heating contract for two residences of John H. Lorenzen.

The John G. Wright Sheet Metal Works, 513 Jefferson street, has been awarded the warm air furnace contracts for residences of J. M. Fell.

LINCOLN, NEB.—Green & McReynolds, 2819 N. 48th street, have been awarded warm air heating contract for residence of Sweeney & Co.

The Harper & McKee Metal Co., 620A South Boulder, have the sheet metal work contract for Dunbar Grade School, in Tulsa, Okla.

BALTIMORE, MD.—Wm. E. Cotton & Co., Inc., 1525 Lamont avenue, has been awarded sheet metal work and roofing contract for McComas Street Terminal Pier Shed.

The Hart Oil Burner Corporation of Maryland, has been incorporated in Baltimore, Md., with headquarters in Title Building, by H. Beale Rollins, G. Frederick Lautenberger and others.

HOUSTON, TEX.—Louis Seline, 608 Clay avenue, has been awarded the sheet metal and corrugated iron siding contracts for building of Prest-O-Lite Co. building.

The Wm. T. Zeller Co., 613 W. Cross street, has the sheet metal and waterproofing contract for the addition to the Park Bank. The Campbell Metal Window Corp. has the metal sash contract, and the Howard Boyer Co. the metal counter work.

SAN ANGELO, TEX.—The Wendland Sheet Metal Works, has the sheet metal contract for the $750,000 Hilton Hotel, while the Berger Manufacturing Co., 2101 Corinth street, Dallas, Tex., has the metal pan and erection contract.

BALTIMORE, MD.—The Kell Metalwork Co., 5105 Cordelia avenue, has been awarded the sheet metal contract, and the Wm. L. Zeller Co., 613 W. Cross court, the ventilating contract for the Oriole Cafeterias, Inc.

NEW ORLEANS, LA.—The Standard Sheet Metal Works, 635 S. Peters street, has been awarded the sheet metal contract for V. C. Jones School.

PORTLAND, ORE.—The Rice & Wallingford Co. has succeeded the business of the Pacific Coast Body & Fender Works.

SEATTLE, WASH.—The Rogers-Linden Furnace & Manufacturing Co., has changed its name to Archie Engineering Corporation.

The Buck Sheet Metal Works, has been adding about $800 worth of new machinery to its equipment.

MINNEAPOLIS, MINN.—The Minneapolis Roofing & Cornice Co., 405 N. E. Main street, has been awarded the roofing contract for $300,000 school building in Neenah, Wis.

MADISON, WIS.—Wolff, Kubly & Hirsig, 401 W. Gilman, have the warm air heating contract for two residences of Frank Newell.

CHANGES BROUGHT

(Concluded from Page 57)

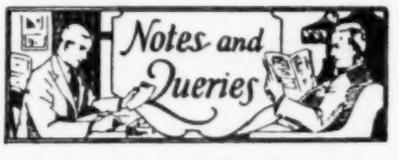
the new dignity with which business and business men are now regarded. Business man were at one time looked down upon. Then they came to be somewhat feared and later envied and regarded with a certain type of disrespectful respect. The professions, the doctors and lawyers and preachers and teachers, looked upon themselves—and were looked upon—as a slightly finer breed of men and somewhat above money-grubbing manufacturers and merchants. It is noteworthy that Herbert Hoover is the first man who has gone from engineering and business into the presidential chair.

This new respect for and attitude toward business, of which Mr. Hoover's overwhelming majority is perhaps the most convincing token, has brought big consequences. During 1928 we have learned to regard business as really capable of managing and regulating itself without much aid or comfort from legislators and politicians. Just to make this point concrete, consider the plan which the oil industry has before it. During December they are to discuss the appointment of some outstanding business man who will seek to reconcile the many divergent interests in the industry.

The New National Unity

Utilities are unlikely to be seriously hampered by the recent charges of "power-trust" designs, which have been brought against them. The rails are being *urged* to merge. All this is evidence of a new confidence in business and business men. America may truly be said to have found a new basis for unity of thought in this new attitude and respect for the commercial forces back of our national progress. How else can be explained the unanimity with which every section of the country is now acclaiming a business man as our leader? The new attitude toward business and business men broke the Solid South as much as did prohibition.

La Salle Extension University Bulletin.



"XXth Century Laurel" Stoves.

From S. D. Porter, Box 477, Ellet, Ohio.

Please advise me who makes the "XXth Century Laurel" stoves.

Ans.—Art Stove Company, Detroit, Michigan.

"Royal" Furnace.

From West Side Hardware Company, Evanston, Illinois.

We should like to know who makes the "Royal" furnace.

Ans.—Hart and Crouse Company, Utica, New York.

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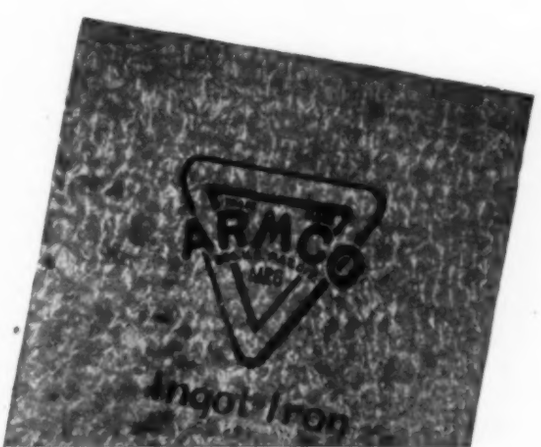

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Executive Offices: Middletown, Ohio

Decline In Steel Checked by Plate Needs

Zinc, Lead and Tin Continue Strong —Domestic Demand for Copper Light

HEAVY steel requirements for shipbuilding, refineries, pipe lines, carbuilding and winter construction programs are tempering the seasonal decline in demand for iron and steel.

Ship projects which eastern yards expect to close shortly call for 85,000 to 90,000 tons, chiefly plates. Recent western pipe awards involve over 200,000 tons of plates, while a line for Albany, N. Y., specifies 15,000 tons, and the long-pending 40,000-ton line in New Jersey matures Dec. 20.

Transportation Requirements for Steel Big

Refinery projects in Texas, taking 36,000 tons of plates, are before Chicago district mills. For November freight car awards 60,000 tons of heavy steel will be specified, and pending car inquiry will match that tonnage. Structural steel awards, at approximately 61,000 tons this week, continue abnormally heavy for the season and are topped by 18,000 tons for an exposition hall at St. Louis. New York subway work, requiring about 34,000 tons of shapes, will be up late this month.

But these peaks in demand fall short of neutralizing the general downward tendency in consumption by the metalworking industry as a whole, and the country's steel requirements have subsided moderately in the past week. Compared with a month ago the markets are much less active, but contrasted with a year ago the industry is on a much higher plane—possibly the highest December plane since the war.

Beneath a more placid exterior, competition for business, especially in the heavy finished steel lines, is intensified. More aggressive selling by some producers has been furthered by the multiplicity of basing points, and advantage is being taken of plant locations. Some important realignments between producers and tonnage buyers are in process. The situation is contributing nothing to the stability of prices.

Copper

Domestic buying of copper has been light the past week, but exports have been fair. December copper is more easily obtainable now than a few weeks ago, as increasing output is making additional supplies available.

This may ease the shipping situation a little from the unusual stringency that has prevailed since spring, but shipments continue so large and the outlook so bright that it is thought prices will not be affected.

Tin

Prices have continued to rise rapidly, although the statistical situation is decidedly bearish. World visible supply increased 1,160 tons last month, and if metal had not been transferred from public to private warehouses by certain interests it is thought that the increase would have been well over 2,000 tons.

The visible supply is the largest in several years. Consumption is large but is not as large as statistics make it appear. Shipments from the producing districts in the Far East are record-breaking. Buying by consumers was light for several days, but has picked up again.

Zinc

Prime western has been more quiet the past few days after two or three weeks of unusually large buying. The price has remained unchanged at 6.35c, East St. Louis, but one or two producers are asking 2½ points more and the market appears strong.

Consumers have bought well for first quarter delivery. The ore market remains unchanged at $40 despite large purchases.

Lead

The New York price went up 15 points on Monday to 6:50c, as had been expected. The East St. Louis price previously had gone up to 6.30c and was strong at this level after the rise in New York. Buying of lead has been large.

Pig Iron

Pig iron consumers at Pittsburgh are deferring negotiations for first quarter requirements, and the market is quiet. Specifications on contracts are well maintained, and furnaces are shipping steadily, although consumers are attempting to keep stocks at a minimum.

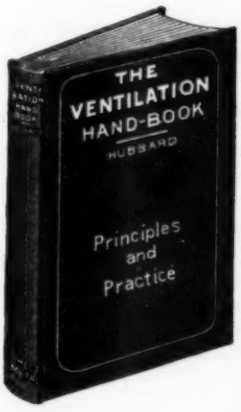
The price situation is to some extent a deterrent to active buying. Melters are not anxious to purchase at what they consider the top of the market.

No. 2 foundry is held at $18, valley, with sales restricted to 300 to 500 tons at a time. Basic is nominal at $17.50.

All pig iron sales at Chicago agencies have heavy order books for first quarter, a majority of large users having covered. Buying has quieted, while shipments are keeping up to the November rate. Deliveries are slightly easier, but furnaces have not been able to build up stocks to any extent. Another cargo of iron is to be delivered by boat from lower lake furnaces to the Chicago-Milwaukee district in the next few days, as part of tonnage ordered earlier in the season. Southern iron is being sold farther north in Illinois. The Chicago furnace price is firm at $20, base. Two thousand tons of malleable was placed in western Michigan.

With orders for pig iron for delivery during the first quarter increasing at Birmingham, furnace interests are trying to obtain a higher price. Sloss-Sheffield Steel & Iron Co. has announced a new base of $17, Birmingham. Others are expected to follow this week. It is believed deliveries during January will exceed production. Some companies' surplus stock is lowest of 18 months.

Order Your Christmas Books NOW



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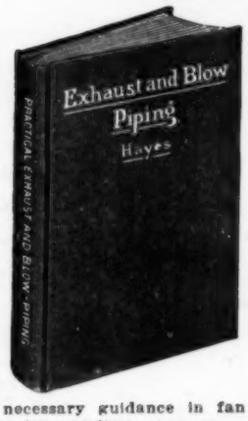

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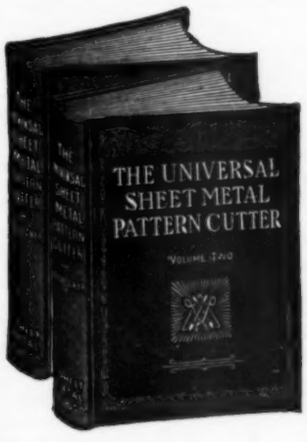

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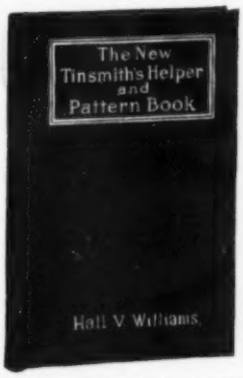

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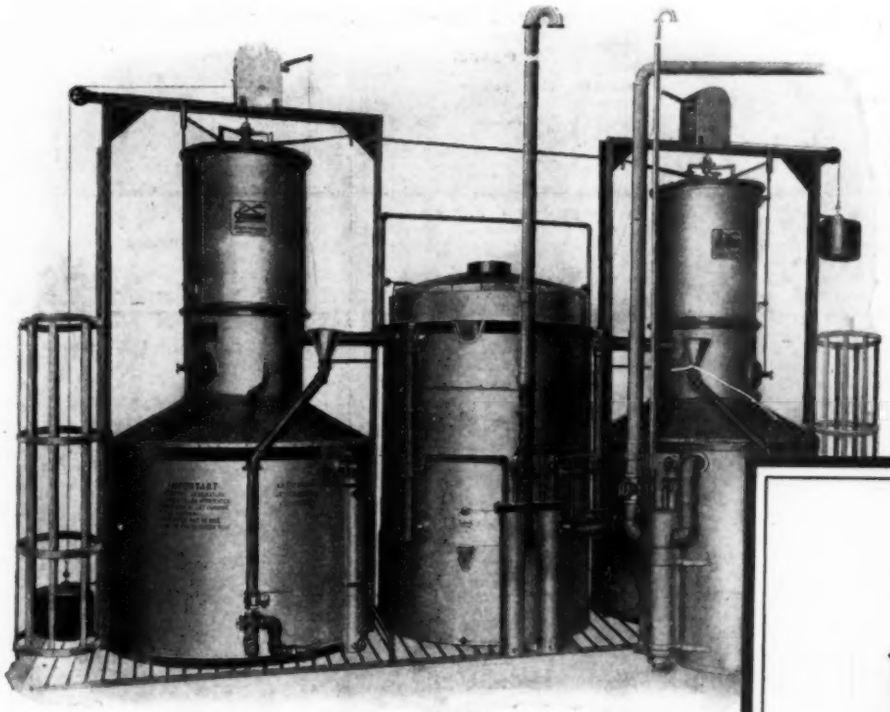

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200-lb. Barrel $16 00
100-lb. barrel 8 75
25-lb. pail 3 50
10-lb. bag 1 10
5-lb. bag 60
2½-lb. cartons 35

POKERS, FURNACE

Each $0 75

POKERS, STOVE

Nickel Plated, coil handles, per doz. 1 10
W'r't Steel, str't or bent, per doz. $0 75

PIPE

Conductor
Cor. Rd., Plain Rd., or Sq.

Galvanized
Crated and nested (all gauges) 75-7½%
Crated and not nested (all gauges) 75-2½%

Furnace Pipe
Double Wall Pipe and Fittings 50%
Single Wall Pipe, Round Galvanized Pipe 50%
Galvanized and Tin Fittings 50%

Lead
Per 100 lbs. $12 50

Stove Pipe
"Milcor" "Titelock" Uniform Blue Stove
28 gauge, 5 inch U. C. nested 10 50
28 gauge, 6 inch U. C. nested 11 00
28 gauge, 7 inch U. C. nested 13 00
30 gauge, 5 inch U. C. nested 9 00
30 gauge, 6 inch U. C. nested 10 00
30 gauge, 7 inch U. C. nested 12 00

T-Joint Made up
6-inch, 28 ga....per doz. $ 4 00

All Zinc
No. 11, all styles.....60%

PULLEYS

Furnace Tackle....per doz. $0 85
.....per gro. 8 50
Furnace Screw (enameled) .....per doz. 75

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Commercial Putty, 100-lb. Kits $3 50

QUADRANTS

Malleable Iron Damper.....10%

REDUCERS—Oval Stove Pipe

	Per Doz.
7—6, 28-gauge, 1 doz. in carton	$2 00

REGISTERS AND BORDERS

Baseboard, Floor and Wall.

Cast Iron 20%
Steel and Semi-Steel.....33⅓%
Baseboard, 1 piece.....40-20%
Baseboard, 2 piece.....33⅓%
Wall 33⅓%
Adjustable Ceiling Ventilators 40%

Register Faces—Cast and Steel
Japanned, Bronzed and Plated, 4x6 to 14x14.....33⅓%
Large Register Faces—Cast, 14x14 to 38x42.....60%
Large Register Faces—Steel, 14x14 to 38x42.....55%

Ventilating Register
Per gross 9 00
Small, per pair 30
Large, per pair 50

RIDGE ROLL

Galv., Plain Ridge Roll, b'did 75-15-5%
Galv., Plain Ridge Roll crated 75-15%
Globe Finials for Ridge Roll..50%

SCREWS

Sheet Metal
7, ½x⅛, per gross.....$0 51
No. 10, ¾x3/16, per gross 6
No. 14, ⅞x¼, per gross.. 81

SHEARS, TINNERS' & MACHINISTS'

Viking $22 0

Lennox Throatless
No. 18 .....35%
Shear blades 10%
(f. o. b. Marshalltown, Iowa)

SHIELDS, ADJUSTABLE RADIATOR

No. 1 "Gem" 11" to 17".....30%
No. 2 "Gem" 14" to 24".....30%
No. 3 "Gem" 25" to 65".....30%

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Galv. 28 Gauge, Plain or corrugated round flat crimp...60%
26 gauge round flat crimp....45%
24 gauge round flat crimp....15%

SNIPS, TINNERS

Clover Leaf .....40 & 10%
National .....40 & 10%
Star 50%
Milcor .....Net

SQUARES

Steel and Iron .....Net
(Add for bluing $3 per doz. net)
Mitre .....Net
Try .....Net
Try and Bevel.....Net
Try and Mitre.....Net
Fox's .....per doz. $6 00
Winterbottom's 10%

STOPPERS, FLUE

Common .....per doz. $1 10
Gem, No. 1.....per doz. 1 20
Gem, flat, No. 3....per doz. 1 00

VENTILATORS

Standard .....30 to 40%

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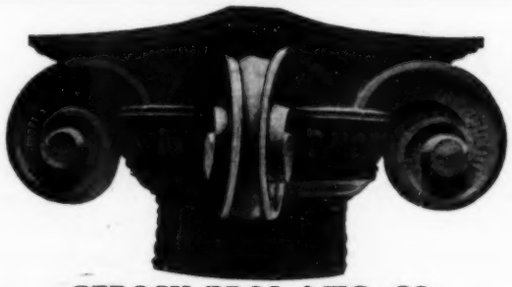
Black annealed wire, No. 9, per 100 lbs. $3 30
Galvanized barb wire, per 100 lbs. 3 90
Cattle Wire—galvanized catch weight spool, per 100 lbs.. 3 80
Galvanized Plain Wire, No. 9, per 100 lbs. 3 25



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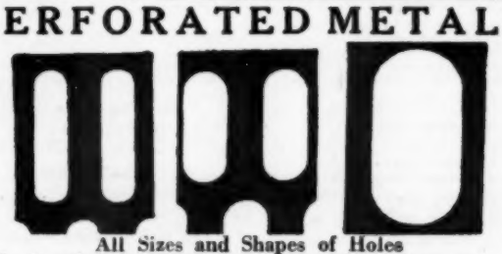

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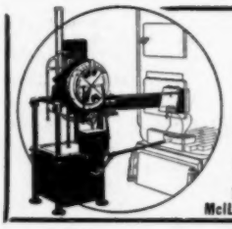

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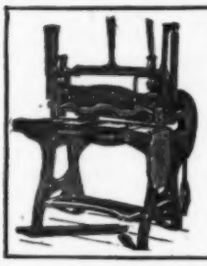

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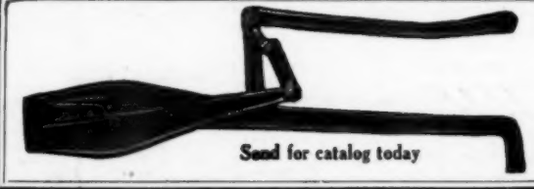

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L. J. Mueller Furnace Co., Milwaukee, Wis.

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Hessler Co., H. E., Syracuse, N. Y.

Regulators—Heat.
National Regulator Co., Chicago, Ill.
H. M. Sheer Co., Quincy, Ill.

Ridging.
Armco Distributors Ass'n of America, Middletown, Ohio
Lupton's Sons Co., David, Philadelphia, Pa.
Milwaukee Corrugating Co., Mil., Ch'go La Crosse, Kan. City

Rivets—Stove.
The Kirk-Latty Co., Cleveland, Ohio
Lamson & Sessions Co., Cleveland, Ohio
Ryerson & Son, Inc., Jos. T., Chicago, Ill.

Rods—Stove.
The Kirk-Latty Co., Cleveland, Ohio
Lamson & Sessions Co., Cleveland, Ohio

Rolls—Forming
Bertsch & Co., Cambridge City, Ind.

Roofing Cement
Connors Paint Mfg. Co., Wm., Troy, N. Y.

Roof—Flashing.
Hessler Co., H. E., Syracuse, N. Y.
Milwaukee Corrugating Co., Milwaukee, Wis.

Roofing—Iron and Steel
Armco Distributors Ass'n of America, Middletown, Ohio
Burton Co., The W. J., Detroit, Mich.
Friedley-Voshardt Co., Chicago, Ill.
Inland Steel Co., Chicago, Ill.
Milwaukee Corrugating Co., Mil., Ch'go La Crosse, Kan. City
Osborn Co., The J. M. & L. A., Cleveland, Ohio
Ryerson & Son, Inc., Jos. T., Chicago, Ill.
Wheeling Corrugating Co., Wheeling, W. Va.

Roofing—Tin.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
Taylor Co., N. & G., Philadelphia, Pa.
Wheeling Corrugating Co., Wheeling, W. Va.

Roofing Tools.
Wm. Eiermann, Brooklyn, N. Y.

Roofing—Zinc.
New Jersey Zinc Sales Co., The, New York, N. Y.

Rubbish Burners.
Hart & Cooley Co., New Britain, Conn.

Schools—Sheet Metal Pattern Drafting.
St. Louis Technical Institute, St. Louis, Mo.

Schools—Warm Air Heating.
St. Louis Technical Institute, St. Louis, Mo.

Screws—Hardened Metallic Drive.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
Parker-Kalon Corp., 200 Varick St., New York

Screws—Hardened Self-Tapping, Sheet Metal.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
Parker-Kalon Corp., 200 Varick St., New York

Screens—Perforated Metal.
Harrington & King Perforating Co., Chicago, Ill.

Screens—Roof
Grand Rapids Wire Products Co., Grand Rapids, Mich.

Shears—Hand and Power.
Interstate Machinery Co., Chicago, Ill.
Marshalltown Mfg. Co., Marshalltown, Iowa
Peck, Stow & Wilcox Co., Southington, Conn.
Ryerson & Son, Inc., Jos. T., Chicago, Ill.
Unishear Co., Inc., New York, N. Y.
Viking Shear Co., Erie, Pa.

Sheet Metal Screws—Hardened, Self-Tapping.
Parker-Kalon Corp., 200 Varick St., New York

Sheets—Black and Galvanized.
Armco Distributors Ass'n of America, Middletown, Ohio
Inland Steel Co., Chicago, Ill.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
Osborn Co., The J. M. & L. A., Cleveland, Ohio
Ryerson & Son, Inc., Jos. T. Chicago, Ill.
Taylor Co., N. & G., Philadelphia, Pa.
Wheeling Corrugating Co., Wheeling, W. Va.

Sheets—Iron.
Armco Distributors Ass'n of America, Middletown, Ohio
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
Ryerson & Son, Inc., Jos. T., Chicago, Ill.

Sheets—Tin.
Taylor Co., N. & G., Philadelphia, Pa.

Sheets—Zinc.
New Jersey Zinc Sales Co., The, New York, N. Y.

Shingles and Tiles—Metal.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
Wheeling Corrugating Co., Wheeling, W. Va.

Sifters—Ash.
Diener Mfg. Co., G. W., Chicago, Ill.

Sky Lights.
Lupton's Sons Co., David, Philadelphia, Pa.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Snips.
Peck, Stow & Wilcox Co., Southington, Conn.
Ryerson & Son, Inc., Jos. T., Chicago, Ill.

Solder.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Soldering Furnaces.
Burgess Soldering Furnace Co., Columbus, Ohio
Diener Mfg. Co., G. W., Chicago, Ill.
Quick Meal Stove Co., St. Louis, Mo.
Ryerson & Son, Inc., Jos. T., Chicago, Ill.

Specialties—Hardware.
Diener Mfg. Co., G. W., Chicago, Ill.
Hessler Co., H. E., Syracuse, N. Y.

Stars—Hard Iron Cleaning.
Fanner Mfg. Co., Cleveland, Ohio

Statuary.
Friedley-Voshardt Co., Chicago, Ill.
Gerock Bros. Mfg. Co., St. Louis, Mo.

Steel Pipe—Welded.
Chicago Metal Mfg. Co., Chicago, Ill.

Stove Pipe Reducers.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Stoves—Camp.
Quick Meal Stove Co., St. Louis, Mo.

Stoves—Gasoline and Oil.
Quick Meal Stove Co., St. Louis, Mo.

Stoves and Ranges.
Quick Meal Stove Co., St. Louis, Mo
Thatcher Co., Newark, N. J

Tinplate.
Burton Co., The W. J., Detroit, Mich
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
Osborn Co., The J. M. & L. A., Cleveland, Ohio
Taylor Co., N. & G., Philadelphia, Pa.

Tools—Roofers.
Wm. Eiermann, Brooklyn, N. Y.

Tools—Tinsmith's.
Bertsch & Co., Cambridge City, Ind
Burton Co., The W. J., Detroit, Mich
Dries & Krump Mfg. Co., Chicago, Ill.
Hyro Mfg. Co., New York, N. Y.
Interstate Machinery Co., Chicago, Ill.
Osborn Co., The J. M. & L. A., Cleveland, Ohio
Peck, Stow & Wilcox Co., Southington, Conn
Ryerson & Son, Inc., Jos. T., Chicago, Ill.
Viking Shear Co., Erie, Pa

Torches.
Burgess Soldering Furnace Co., Columbus, Ohio
Diener Mfg. Co., G. W., Chicago, Ill.
Quick Meal Stove Co., St. Louis, Mo.
Ryerson & Son, Inc., Jos. T., Chicago, Ill.

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Copper & Brass Research Association, New York, N. Y
Sheet Steel Trade Extension Committee, Pittsburgh, Pa.

Trimmings—Stove.
Fanner Mfg. Co., Cleveland, Ohio

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Akrat Ventilators, Inc., Chicago, Ill.
Arex Company, Chicago, Ill.
Berger Bros. Co., Philadelphia, Pa.
Friedley-Voshardt Co., Chicago, Ill.
Kernchen Co., Chicago, Ill
Lupton's Sons Co., David, Philadelphia, Pa.
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Standard Ventilator Co., Lewisburg, Pa

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Hart & Cooley Co., New Britain, Conn
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WANTS AND SALES

Yearly subscribers to the AMERICAN ARTISAN may insert advertisements of not more than fifty words in our Want and Sales Columns WITHOUT CHARGE.

Such advertisements, however, must be limited to help or situation wanted, tools or equipment for sale, to exchange or to buy, business for sale or location desired and must reach our office by Thursday of the week of publication. This privilege is not extended to manufacturers or jobbers—or those making a business of buying and selling used machines, employment agencies and brokers.

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Lightning Rods—Dealers who are selling Lightning Protection will make money by writing to us for our latest Factory to Dealer Prices. We employ no salesmen and save you all overhead charges. Our Pure Copper Cable and Fixtures are endorsed by the National Board of Fire Underwriters and hundreds of dealers. Write today for samples and prices. L. K. Diddle Company, Marshfield, Wis.

For Sale—Sheet metal and furnace business. North Iowa town, 3,000 population. Good location, low rent. Furnace line established 20 years. Full line of furnace, spouting and roofing tools, including 8 foot brake. Stock and tools worth $1,000.00. Will sacrifice for quick sale. Reason, other business. Address R-485, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

Wonderful bargain for live tinner in a good city. Fully equipped shop—8-foot brake, square shear, rolls, folder, motor, bench tools, etc. Good size shop; cheap rent. All tools and ton truck in lump only $900.00. Address G. G. Jeronimus, 1425 Ashland avenue, Evanston, Ill. K-486

For Sale—Well established sheet metal and plumbing shop in a town of 2,000. Right in the heart of the dairy center. Will sell entire business including building, or will sell separately. If interested write for particulars. Address M. B. Sleep Plbg. & Htg. Co., Darlington, Wisconsin. P-485

80 acres of good land to exchange or trade for hardware, tinshop and stock, or furnace stock. Address Box 548, Pierre, S. D. J-486

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Situation Wanted—Man with twenty years' experience in all the branches of Sheet Metal work, including kitchen equipment, furnace work and specializing in ventilation work, desires position. Strictly sober, honest and reliable. Services available November 20th. Address A 486 AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

SITUATION WANTED

Capable furnace man, tinner and pattern cutter. Clean habits, 20 years' experience. Desire a conservative reliable firm doing sheet metal and furnace business who wants a man for steady work. Prefer Illinois, Iowa, Missouri or Kansas. Please state particulars. Address R-486, AMERICAN ARTISAN, 620 So. Michigan Avenue, Chicago, Illinois.

A first-lass all around sheet metal worker, layout man and foreman wants steady position now. Fully experienced in all lines of work. Cornice, skylight, blow pipe, ventilation, etc. Married, sober, steady, and a hustler. Prefer South or East. State wages and hours. Address S-486 AMERICAN ARTISAN, 620 So. Michigan Ave., Chicago, Ill.

Situation wanted by an all around handy man. Plumbing, steam fitting, tin work, house electric wiring, guttering. Finest work and can also help in hardware store; 14 years' experience. Address H-486, AMERICAN ARTISAN, 620 South Michigan avenue, Chicago, Illinois.

Live wire, capable, reliable furnace salesman desires to make change. Would consider proposition from progressive furnace concern. Eight years' road experience in Illinois and Indiana. Address G-486, AMERICAN ARTISAN, 620 South Michigan avenue, Chicago, Illinois.

HELP WANTED

Tinner Wanted—A good clean young tinner that can erect and repair windmills and pumps, install furnaces and do all kinds of work that comes into a hardware store in a town of 4,000 people situated in a very rich farming country in the southeast corner of South Dakota. Steady job the year around for the right man. State wages in first letter and give references. No boozer need apply. Address T-485, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

Wanted—Young tinner and combination plumber who knows his stuff, as partner. Should have about $600.00 to invest. Address W-485, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

HELP WANTED

Wanted—Tinner and heating man to run shop in town of 3,000. Modern, and one of the best for its size. Five churches, two grade and one high school and Military School. This will interest you if you have a family. If interested in steady work write, and we will give full particulars. X-486

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TINNERS' TOOLS

For Sale—2 pair 30 inch square shears, 1-8 foot Chicago steel brake, 2 pair 30x2 inch rolls, 1-20 inch Groover P. S. & W., 1-20 inch Groover incased, 1 P. S. & W. Wire machine, 1 Beakhorn stake, 1 blowhorn stake, 1 large P. S. & W. beading machine, 1 small P. S. & W. beading machine, 2 plain setting down machines, 2 small thin edge burring machines P. S. & W., 1 pair No. 20 bench shears. All these tools in good condition, cheap, for quick sale. Bateman Heating & Metal Company, 309 Edmond Street, St. Joseph, Missouri. Y-485

For Sale—A complete set of tinner's tools, including 8-foot Dreis & Krump brakes, about new; 30-inch rolls, large crimper, burring machine, swedger, mandrel and stakes; all in first-class condition. Must sell. Address Y-486, AMERICAN ARTISAN, 260 South Michigan Ave., Chicago, Ill.

"You see I have to do things big, judging by the size of my family," writes a student on the back of a Kodak picture similar to the above.. He adds: "Nothing small about me. I got through being a cheap mechanic when I took your course, and my business has grown wonderfully since, and I feel I really owe it to the St. Louis Technical Institute."

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Harken to this Command, O Ye Shop Owners, Salesmen, Mechanics, etc. Fortunes will be made in these next few years by those who KNOW. Devote this Winter to mastering a Technical Education so later you can go after the bigger paying Jobs—the ones with steady work—that make for the longer yearly income. You can make this your personal Victory by qualifying yourself to Read Plans, Laying Out, Estimating and Managing the bigger paying jobs.

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TINNERS' TOOLS

For Sale—1-36 inch Niagara Queen City square shears. These shears are in A-1 condition and the first draft for $95.00 gets them. E. Haverstock, Route 8, South Bend, Indiana. Z-485

Wanted—A 4 foot or 5 foot steel brake. Address Peter J. Born, 2180 Philip Avenue, Detroit, Michigan. B-486

For Sale—1-8 foot squaring shear, foot power. L. T. Petersen, Denison, Iowa. S-485

Wanted to Buy—20" Bar folder. Address L. T. Petersen, Denison, Iowa. Q-486

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FOR IMMEDIATE SHIPMENT

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Sheet Metal Working Machinery Bench Machines and Hand Tools
—NEW AND USED—
Chicago Steel Brakes—Slitters—Whitney Punches—Shears—Angle Iron Benders—Notchers, etc.
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Patent Attorney
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One good, live salesman for the State of Michigan and one for the State of Iowa, to sell a well-known brand of cast furnaces, on commission basis. Address O-486, American Artisan, 620 So. Michigan Ave., Chicago, Ill.

SALESMAN WANTED

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SALESMEN WANTED

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Experienced furnace salesman, well acquainted with dealers and jobbers in the Mid-West, desires connection with a reputable concern, either as sales representative or Chicago branch manager. Can give convincing proofs of my ability to produce. Address M-486, American Artisan, 620 So. Michigan Ave., Chicago, Ill.

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Manual of Automotive Radiator Construction and Repair, by F. L. Curfman and T. H. Leet—Anyone interested in Radiator Repairing will find the 185 pages of practical instructions and the 120 illustrations showing actual construction and repairing a big help. In a condensed manner some four to five thousand answers to questions are given. It is thoroughly practical as both authors are men of wide experience in this work. Printed in large, easy to read type. Measures 5¾x9 inches. Price $2.50. Order from Book Dept., AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

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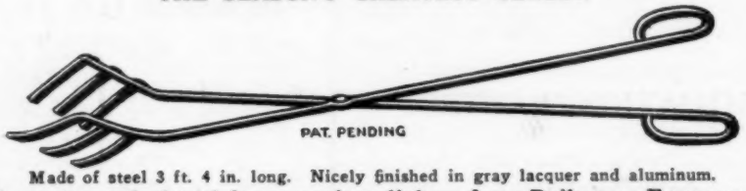

Made of steel 3 ft. 4 in. long. Nicely finished in gray lacquer and aluminum.
A most practical tool for removing clinkers from Boilers or Furnaces; also for Fireplaces. Retails for $2.00, west of the Rockies $2.25. Dealers' price $15.00 per dozen—special prices in quantities.
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The STANDARD CODE Computing Rule

SQUARE INCH REGISTER AND LEADER PIPE AREAS REQUIRED FOR EACH FLOOR
WALL, ROOF & CEILING
GLASS
CONTENTS
FIRST
SECOND
THIRD
THE STANDARD CODE COMPUTING RULE
ARTICLE THREE FIFTH EDITION OF THE STANDARD CODE MARCH 1, 1928
STANDARD CODE COMPUTING RULE CO.

Adapted from Article Three ***5th Edition***

of the

STANDARD CODE

MARCH 1, 1928

Simple to Operate

THE Computing Rule is not a novelty, but, a well designed mathematical device, for figuring leader pipe and register areas for warm air heating systems. It has proven its accuracy in estimating and has passed the experimental stage. It is operated similar to an Engineer's slide rule.

The complete instructions are easily understood. You can learn to operate the Rule in less than one hour.

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Simplifies accurate estimating.

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RULES are 5½ inches in diameter—⅛ inch thick. Has an upper and lower revolving disc with a hairline indicating arm.

It is made of extra heavy and specially prepared celluloid, which reduces shrinkage and warping to a minimum. It is washable and unbreakable.

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3. The areas from the Contents, Glass, Wall, Roof and Ceiling. The factors as covered in Table "A" are represented in accurate form.
4. The areas for rooms having One, One and One-half and Two air changes per hour.
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Mfg. by WM. EIERMANN, 1971 Fulton St., Bklyn., N. Y.

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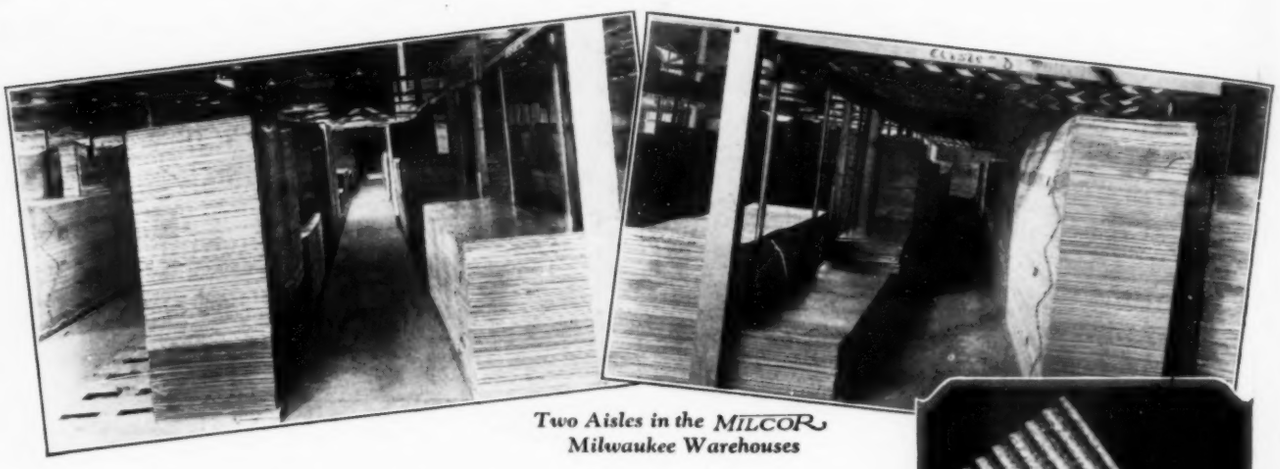

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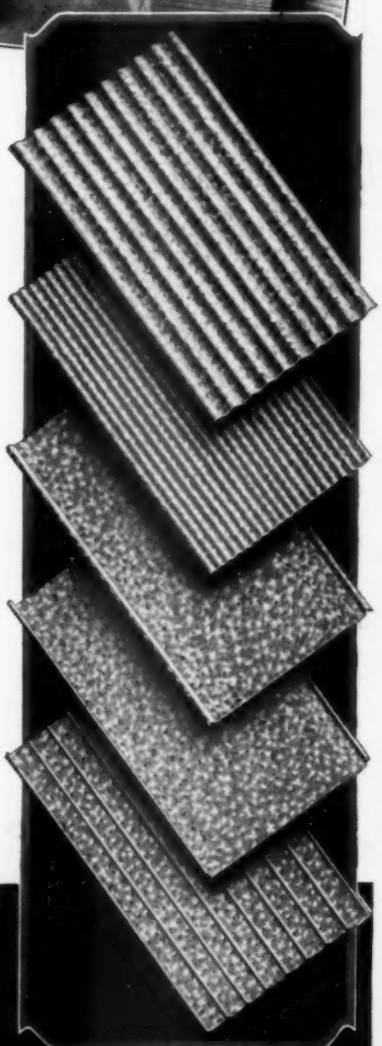

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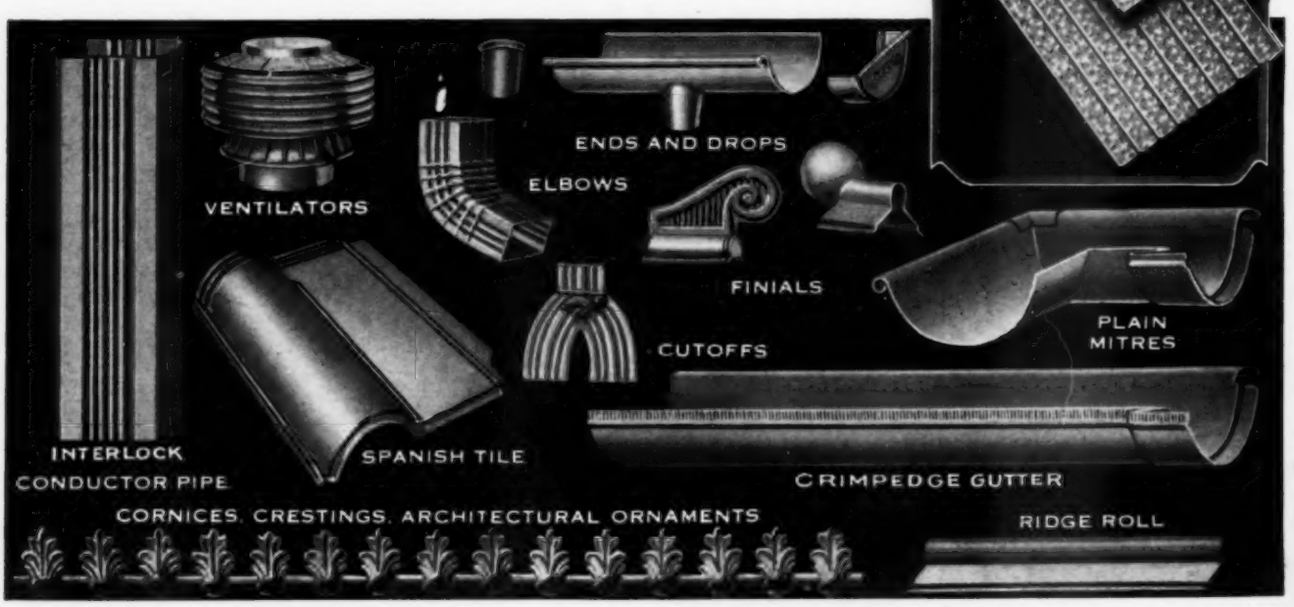

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